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DEPARTMENT OF COMMUNICATIONS



MINISTÈRE DES COMMUNICATIONS

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Statement and speeches  
TELECOMMISSION

HOLD FOR RELEASE

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RÉF. À RAPPELER:

Text of a Statement  
by  
The Honourable Eric Kierans  
Minister of Communications

I am pleased to present to this House today "Instant World", the general Report of the Telecommission. The tabling of this document and its release to the public, marks the completion of the first and perhaps the most difficult phase of a process of study and consultation on the state of communications in Canada, and on the needs present and future, of the Canadian people. This first phase began more than a year ago when I launched the Telecommission on September 18, 1969. The next step in this process will end when I will again come before this House to present the Government's White Paper on telecommunications policy and regulation.

Because the Telecommission report was intended from the outset to serve as a mechanism for the collection of information and opinions on the basis of which proposals could be formulated, the document presented to Parliament today does not contain officially endorsed recommendations or expressions of opinion by the government.

With the publication of this vast store of information, gathered together in one report for the first time in Canada, it is expected that the Government will be able to proceed in a short time with preparation of a white paper which will contain specific expressions of the government's policy. We will now begin immediately a process of further consultation with the representatives of provincial governments, private industry, users and other interested groups. As Minister of Communications, I will participate directly in these consultations, as will senior officials of the department.

Because the Telecommission report is to date the most complete and most coherent discussion of telecommunications problems and opportunities in Canada, I earnestly



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DEPARTMENT OF COMMUNICATIONS

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HOLD FOR RELEASE

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Text of a Statement  
by  
The Honourable Eric Kinnear  
Minister of Communications

I am pleased to present to this House today  
"Instant World", the General Report of the Telecommunications  
Commission and the release to the public.  
The finding of this Commission and the release to the public  
marks the completion of the first and perhaps the most  
difficult phase of a process of study and consultation on  
the state of telecommunications in Canada, and on the needs  
present and future of the Canadian people. This first  
phase began more than a year ago when I launched the  
Telecommunications Commission on September 1, 1975. The next step in  
this process will be the release of the Commission's  
House to present the Commission's report on this  
telecommunications policy and regulation.



Because the Commission was launched  
from the outset to be an independent body for the collection  
of information and opinion on telecommunications policy and  
regulation, the document presented to Parliament  
today does not contain officially endorsed recommendations  
or expressions of opinion by the government.

With the publication of this first study of telecommunications,  
gathered together in one report for the first  
time in Canada, it is expected that the government will  
be able to proceed in a short time with legislation which  
will contain specific provisions on  
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a process of further consultation with the telecommunications  
of provincial governments, private industry, labour and  
other interested groups. As Minister of Communications,  
I will participate directly in these consultations, as  
will senior officials of the department.

Because the Telecommunications report is so basic the  
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commend it to the attention of all members of this House, and to all Canadians who have an interest in the rational and equitable development of telecommunications facilities in our country.

This document represents the final distillation of the work of 43 separate study groups. It represents an almost unprecedented collaboration of hundreds of individuals, groups, institutions, departments and agencies of Government, private firms and universities. The object of this work was to collect all the information possible on which to base sound judgements in the months and years ahead. The next step in the continuing search for better arrangements and better policies will be, as I have said, the White Paper.





AFTER THE TELECOMMISSION

a speech

by

the Hon. Eric Kierans,  
Minister of Communications.



Delivered in Toronto  
at 6:30 p.m., April 19, 1971  
before the Toronto Branch  
of the Data-Processing Management Association.

RELEASE: 18:30 Hrs. April 19, 1971.





As you are no doubt aware the department which I head, the Department of Communications has quite recently published the general report of the Telecommission. The publication of this document which I tabled in the House of Commons on the 7th of this month marked the completion of a first major step in an orderly process towards the development of a comprehensive, rational and Canadian communications policy. This investigative process which dates back almost to the creation of the new Department of Communications, two years ago, has raised some fundamental questions about the importance and the power of communications systems in this northern half of a continent which we share with the most powerful nation on our planet. Some of the questions that have caused us the most trouble have been those in the gray zones between computers and communications systems, between private enterprise and government intervention, between federal and provincial jurisdiction or again between broadcasting and telecommunications policy.

In some cases the questions have been troublesome to such an extent that interested parties, and that sometimes includes the Department of Communications as well, could very well wish that we had never raised the issue. But of course the vision of a return to a simpler, more innocent period of our history, is, however charming, a dangerous illusion.

Troublesome questions could not have been avoided in the long run even if the Government of Canada had chosen to ignore them. But the mere fact of forming a new central point of national interest in telecommunications was bound to have implications in regard to some of these issues, especially since this meant the creation of a new focal point for the exercise of federal power. And while I share the difference of many liberal democratic politicians in speaking about the exercise of power, I fear that we shall not get anywhere in Canada in any field of policy, whether it be in communications or in external affairs or again in federal-provincial relations, unless we understand the power we are dealing with and unless, furthermore, we can relate our use of power to the legitimate and historic principles of Canadian sovereignty, social justice, cultural and regional diversity and freedom of choice for individuals.





I have uttered the unutterable, having said that the very creation of a department of Communications constituted a new concentration of federal power, I would like to look back at some of the fears and uncertainties this new focus of interest has provoked. I would also like to review some of the measures we have taken to reassure interested groups, to make transitions as harmonious and cooperative as possible and to make our policies and actions as equitable, as sound and as enlightened as we could.

One of the first bogeymen we had to deal with after the Department of Communications was founded was the fear that the government was about to nationalize a major part of the Canadian telecommunications system and convert it into a state-run operation on the model of European PT&Ts, or alternatively that we would regulate so severely that we might as well nationalize. Since this canard seems to have been grounded in more recent months, I won't dwell on its flights into fancy at great length. I will simply state that we don't have any such plans, and even if we did, I don't think it would be wise, as I have suggested in regard to another transmission facility, to tie up so much of the nation's credit at one time and on one system. Nor do we intend to regulate common carriers into bankruptcy or abject submission. We have in Canada, it is generally admitted, even in my department it is admitted, a very efficient telecommunications industry. But that doesn't mean that there is no need for a national communications policy or that the Department of Communications has no role as a protector of the public interest. Even if the common carriers could assure us that they were the best guardians of the public interest in such matters as rates, interconnection standards, research policy, inter-company revenue sharing, cross-subsidization, regional development and so on, others alas, less trusting than ourselves, would probably insist that an outside arbiter was necessary. Because there is likely to be this sort of insistence on the part of consumers of communications services and because the federal government has assigned this area of the public interest to my department it seems inevitable to me that either through a greater use of the executive powers of government or through a new consolidation of regulatory functions, some of the decisions affecting the development and distribution of communications services will be debated in a somewhat larger forum than the traditional annual meetings of shareholders.





The difficulties that we had in dispelling the notion that we were about to raise \$6 or \$7 billion to nationalize the private telecommunications companies, were as nothing compared to the rumors that we were about to hand over the computer industry to the common carriers. In effect we had become convinced, as had a significant portion of the equity market, that computing power distributed to customers from large central installations through communications systems, was an important development that could have great economic, social and political impact on Canadians collectively and individually. And while the stockmarket has been more fickle, we still believe that the computer utility is both a promise and a challenge for Canada. We also believe that communications companies will play some sort of role in the development and rationalization of this new industry. What is less clear is what interested parties and the Canadian public in general want us to do about it. That is why the department devoted so much attention to this special question in the Telecommission studies; that is why we tried last summer to open a public discussion of the special problem of common carrier entry into the field of remote processing, with the publication of the so-called "yellow paper" and finally that is why we have formed a Task Force under the direction of Dr. Hans von Baeyer in an attempt to get the most comprehensive analysis possible at this time of the issues and solutions involved in this complex field of computer/communications.

Throughout this exercise, which I think reflects a genuine concern on our part to assure the public interest with the least possible damage to private enterprise, we have been told 1) that we have made up our minds without investigating all the facts or 2) that we keep investigating the facts but won't make up our minds or 3) that our investigations and lack of decision has caused great uncertainty, all of this, apparently being bad for company revenues and share performance. We have heard that communications companies would like nothing better than to use their vast resources to crush the initiative of independent computer utilities, while at about the same time executives of the largest common carriers were saying that they had no strong interest in data-processing, but rather in its distribution. Inexorably we have been led to the conclusion that the problem is somewhat more complex than some of the interested parties believed, or suggested, when they gave us advice. So, despite all the allegations to the contrary,





I have no hesitation in telling you that if we have made up our minds about anything it is that if we are to come up with programs and policies which serve the public interest we cannot rely solely on the views of one special interest or another. We will have to do our own investigation and our own thinking and that is what the Task Force is about. Furthermore, I am convinced now that no matter how much we try to avoid precipitous or ill-informed or unilateral action we must be prepared for the possibility that we will be blamed, perhaps even unjustly, for somebody's ruin or lack of success.

If for example it becomes obvious that action is required to counter a dangerous trend towards storage of data outside Canada and if the possibility of such action should displease an entrepreneur of a more continentalist persuasion, then I guess we will have to live with his displeasure, while acting in what we judge to be the best interests of Canada; and if it becomes evident that Canadians want better guarantees of their privacy in a computerized age, then we will again take action even at the risk of undermining the market value of hearsay information and anonymous gossip; or to use still another example if it should become obvious that current allocation of digital transmission facilities are too conservative to assure the development of a Canadian system or systems meeting the goals of equitable access to all Canadians, then it will be our duty to promote network expansion either through regulation or investment.

In all of these sample problems, and I must stress that until the Task Force has made recommendations they are hypothetical samples, I have no difficulty in understanding that interested parties will voice dissident views; but for their part the representatives of private interests must understand that our policies are based on an honest attempt to further the national interest and that the Government of Canada not only has a mandate but also a duty to make such policies in the interests of Canada as a whole.

Speaking before the Calgary Chapter of your association last week, Dr. von Baeyer outlined some of the questions to which he thought the Task Force should find answers. These included: who is doing what? in other words who is supplying data-processing services either for themselves or for others? what services are being provided and to what extent do these





services correspond to the real needs of the users? who should offer data-processing services?-this is a question that goes beyond the issue of common carrier entry, for example should banks and insurance companies, or even department stores offer such services? to what extent should there be regulation and should it cover such matters as rates, standards of service and privacy? are special computer/communications networks required?

The Task Force fully expects to bring answers to these and other questions in the form of recommendations. These recommendations are expected before the end of the current calendar year.

The report of the Task Force will follow two other important documents: the Telecommission Report which was published earlier this month and the White Paper on communications which was promised in the Speech from the Throne. The White Paper will establish a general regulatory and policy framework for communications in Canada, but it will not deal with the special problems of computer/communications systems. Until all of the **various studies** are completed, it is our hope to maintain a valid discussion of issues within the context of the principles and seminal ideas which have merged from the Telecommission Report. I would like now to draw your attention to some of these principles and ideas.

Perhaps the most important of these is the principle of access. Underlying this is what has been called the right to communicate. My interpretation of this principle is that communications systems are, or ought to be, built for people. This does not mean that none will be built to support or strengthen institutions and power structures. What it does mean is that a continuing effort must be maintained to guarantee that the power of the individual, the ordinary consumer or the ordinary citizen is not diminished or constrained by the efficiency of machines serving the system or the established social or economic order.



A chequeless or even cashless credit system which too quickly undermines the psychological impact of spending or which subtly enhances the relative power of private banks in the monetary system, should not be imposed upon a society merely because it's an engineering success. If such a system is introduced it should be because in ways that are both tangible and intangible it helps to improve the quality and richness of life for the Canadian people. And frankly I don't think such decisions should be left solely to the discretion of systems designers and managers who have a vested interest in a particular type of installation. An element of control must rest with government which has a mandate to protect the public interest and which through the democratic process must respond to the political will of the Canadian people.

The principle of access not only means that people will have some control over the development of their telecommunications environment, but also that there will be a bias in public policy favoring a greater equalization in the services offered in remote or less lucrative markets. This principle of access should be of special interest to the computer industry because of its implications in terms of rates and interconnection arrangements.

A second important principle raised by the Telecommission studies is Canadian control. The fact that the Canadian telecommunications industry is largely Canadian-owned and entirely under Canadian regulation has had a strong impact on the Canadian electronics industry. Canadian manufacturers of communications equipment can compete with foreign manufacturers both at home and abroad because they have domestic markets that are large enough to support research and development costs. This sort of industrial spinoff from Canadian control of communications systems can be enhanced by policies and regulation that encourage specialization and discourage market fragmentation.

Elsewhere the report investigates new regulatory structures: for example a new specialized communications commission which would take over the functions now performed by the Canadian Transport Commission, or yet again a new kind of body for Canada which would merge the functions of the CTC in rate-setting, and the regulatory powers of the Canadian Radio-Television Commission over broadcasting hardware and content.





This second model recognizes that the traditional distinction between broadcasting systems and telecommunications systems is becoming less valid: if for example a cable system could offer a service which a telephone company could also offer, such as meter reading, or if a broadcasting undertaking includes a microwave link which could be supplied by a common carrier, then the decisions made about the form of hardware obviously affect the viability and efficiency of the other.

Throughout the report there is a strong insistence on the eventual interdependence of all communications and information systems. A cable installation used by a CATV operator may appear to be a purely local or even provincial undertaking at one point in time. But that has to be short-sighted vision of the importance of this facility since even now such installations have a strong impact on the viability of the Canadian broadcasting system and in the future they may have an equally strong effect on the integrity and viability of other communication systems.

This is why our department has insisted so strongly on consultation with others, whether they be representatives of consumers, of industry or of provincial governments, to assure that sudden and unilateral decisions are avoided and to make certain, with all the certitude that is humanly possible, that those changes which are necessary happen in a context of order and understanding and that the destructive effects of unwarranted shocks and surprises are averted.

It was this spirit of cooperation that made the Telecommission such a success; we hope that the same spirit will reign as we meet officials and ministers of provincial governments next month in our preparations and we hope that we can count in the same way on the collaboration and understanding of your industry in the work of the Task Force on computer/communications.





Text of speech by  
A. E. Gotlieb, Deputy Minister  
Department of Communications  
to  
Symposium on  
"Computers and Privacy"  
organized by  
Department of Computer Science  
University of Toronto  
June 1, 1971

(For release: 3 P.M. EDT)



One story which regularly makes the rounds of the computer world illustrates the power of these machines by describing them as being capable, in a microsecond, of executing an error that otherwise would require the services of a hundred clerks working continuously for about a hundred years. Some of you may recall also the famous cartoon in the New Yorker of a few years ago which showed a giant computer with two men standing before it reading the printout and one man telling the other, "It says Cogito Ergo Sum".

Aside from demonstrating the difficulty of making fun of computers, those stories are revealing also of public attitudes towards the computer: humour is being used to tame this extraordinary machine, and to bring it down to fallible, human scale.

The attitudes of laymen toward the computer, and if I can guess at them with any accuracy it is only because I am a layman myself, are an amalgam of awe, wonder, bewilderment and fear. A fear, instinctual rather than calculated, that computers may reduce us to numbers; fear that we have invented machines which will one day exceed all our intellectual powers just as they already exceed our powers of memory and of calculation; fear also that computers will make available to those who may wish to use it, an opportunity to exercise political control on an unprecedented scale; and fear finally that computers, because of their extraordinary capacities to process and handle information, will not so much invade privacy as simply obliterate it by making all information about everyone available to anyone.

To most computer professionals these fears of the layman are not merely irrational and inaccurate but absurd. Computer professionals are far more conscious of the limitations and frailties of these machines than of





their supposedly limitless powers. They are aware also that many of the futuristic visions of total information systems are created from equations from which the factor of cost, and therefore of practicality, has been omitted.

Are the laymen or the professionals right? I am not sure, but lean myself to a third view. Can there be an intrinsic connection between an inanimate machine and the values and qualities of the society within which the machine happens to be used? The connection can be created by the ways in which we use the machine and the ways in which we allow its needs to supersede our own needs. But the connection can be created also by the very existence of the machine as a part of our social, industrial and intellectual environment, an environment which in turn is modified by the existence of the machine itself.

The first public recognition that there might be a connection between computers and the quality of personal privacy in society occurred in 1965 when a proposal for a National Data Bank, incorporating the individual records of most government departments, was placed for approval before a Congressional Sub-Committee in Washington. The arguments advanced in favour of the bank were that it would increase administrative efficiency and extend the opportunities for useful social science research. Instead, not only was the project itself vetoed but it provoked a Congressional investigation of the entire issue of computers and privacy.

Since then there has been, as you know, a steadily growing public concern about the relationship between computers and personal privacy. And yet we, and by we are meant both laymen and those charged with specific responsibility for studying the issue, are by no means certain what it is



that we are concerned about. We sense rather than know that a problem exists or may exist, that there is beneath the surface of day-to-day events a dynamic process in motion which if it is not identified and controlled could have profound implications for our society, and could perhaps transform it into one which, although not necessarily better or worse than the society we survive in today, nevertheless would be profoundly different without our ever intending it or willing it to happen.

Our uncertainty exists because privacy itself eludes definition and perhaps even comprehension. It is a quality, a condition which we can recognize most readily by its absence. Privacy is "the right to be alone", as Warren and Brandeis phrased it in their epochal article for the Harvard Law Review of 1890, the right to be apart physically and psychologically, to withdraw at a given moment from the social collectivity, the right to preserve a personal space or domain and to determine for oneself the boundaries and the content of that domain.

Privacy of course is not a constant value. Different individuals and different societies perceive its qualities differently. 150 or so years ago the architectural privacy that we take for granted today was unknown except for the very rich; today some members of our generation, including often the sons and daughters of the rich, are consciously abandoning spatial privacy in order to create a communal style of living.

At a Conference on Computers and Privacy held at Queen's University a little less than a year ago and organized as part of the Telecommission inquiry into communications, I suggested that privacy could perhaps be expressed in terms of a right to disconnect, the obverse of the principle of a right to connect to communications systems and to access the information available in society. Without the ability to disconnect, I





suggested that an individual "may come to feel to an ever-increasing extent that he is spied-on in an information-dominated society and his behaviour may be influenced to the point where he prefers to act in the same way as those around him and not set himself apart".

Privacy is thus a kind of protective halo around individuality. People retreat into themselves to become themselves, to deviate, to drop-out if they wish, to re-establish their psychological equilibrium, to disconnect in order that they can later connect to the extent and in the manner they determine for themselves. In the absence of any privacy each man could become everyman, accepting conformity because there is no remaining space in which to be different.

In rural communities, where few human frailties can be hidden from village gossips, the kind of privacy about which we are concerned is almost non-existent. Yet in these small communities there is an organic informational balance, for if the citizen of a village can hide few of his secrets he knows who knows them, and he knows their secrets as well.

In our urban, organized society that rough and ready balance is in danger of being disrupted. Institutions, corporate and public, by utilizing the enormously efficient techniques available for the gathering, storage, processing and distribution of data, are able to acquire an encyclopedic knowledge about individuals who in return have acquired few compensating powers. Not only do individuals often not know what information is held about them, by a government department, finance company, a credit agency, or know the uses to which that information is being put, but these individuals often face hindrances in obtaining access to information about those institutions themselves. The efficiency of



information systems, which as a consequence of their complexity and cost can be more readily exploited by large organizations rather than individuals, could therefore divide society into those who manipulate information and those about whom information is manipulated.

The issue of privacy and information systems it therefore seems to me can be perceived and perhaps understood in terms of two related but separate issues: the potential reduction of the private space of each individual a space which possesses physical, even biological and social dimensions but which at its core is a psychological condition or quality; and also the potential imbalance in the rights and powers of individuals in contrast to those of their social institutions which if unchecked could threaten the basic concepts of individual freedom and equality before the law upon which we have built our democratic political order.

All of the conditions which contain within them a threat to privacy pre-existed the computer. So did the data bank: the first in the Anglo-Saxon world probably being William the Conqueror's Domesday Book.

The maintenance of any records containing personal information about individuals is by definition a potential intrusion of privacy, but the act suffers from no illegitimacy as such. On the contrary most files on individuals, containing medical records, educational records, financial statements, are maintained with the express purpose of benefiting the individual concerned. Other files, such as those of the police, are created to benefit society, and therefore should benefit all individual members of society.

Record-keeping on a major scale was initiated by government and





can be dated back to the introduction of programs such as those of unemployment insurance and welfare that were designed to mitigate or eliminate social and economic inequalities. To administer such programs, and to determine who was and was not eligible, it was necessary to accumulate extensive information about all citizens of the country. Today, and heightened by the introduction of the techniques of scientific, or supposedly-scientific, management, the accumulation of vast amounts of detailed information about both things and people is considered essential to the continued operation of government.

At the same time as information has become essential for government to administer and to plan, information has in itself acquired an intrinsic commercial value. Like any scarce resource, accurate information is a saleable commodity. A mailing list can be the most valuable single property that a magazine possesses. Insurance companies, banks, our entire system of commercial and retail credit, could not operate without extensive and intensive information systems. The granting of credit for example is in essence an act of faith but in practice faith is based upon knowledge and hence the information upon which the decision to grant credit is based acquires the same value as the loan itself.

The third cause of the current information explosion is the phenomenon of vast amounts of personal data being gathered for the purposes of social science research. Sociologists, anthropologists, psychologists, political scientists, economists, and on through Masters and Johnson, all want to know, and in varying degrees need to know, about society and individuals in the most explicit and encyclopedic detail. These explorations into the individual and social psyche are published as statistical tabulations so that the privacy of particular individuals is protected; yet when the behavioural patterns of all



members in a society are known, so also are the behavioural patterns of each individual member of that society. Let me add, so that my remarks are not misunderstood, that I am not referring here to basic census data which is of course essential to every country.

All these developments preceded the computer, just as 1984, that literary symbol of a totalitarian technological society, which interestingly is a numerical symbol, was written at a time when the digital computer was hardly more than an experimental curiosity.

The particular technical characteristics of computerized information systems, in contrast to those of manual systems, have created certain problems although in my judgment none of these are of major importance and solutions can be defined with some ease. Computerized files, for example, can be readily and quickly copied, leaving no evidence, since one reel of tape looks like another, that the act ever took place. Computer-communications systems, which link one or more processors to multiple access points, require a system of passwords so that users at remote terminals can be identified. Similarly, when a computer contains the files of several users, measures have to be taken to ensure that one user cannot, accidentally or deliberately, gain access to the private files of other users.

In deciding whether the threat to privacy is a fundamental rather than a marginal problem we must examine the general characteristics of computers as instruments for processing data. At least in theory, computers remove all restrictions upon our capacity to store, manipulate and distribute data: the full life dossiers of each Canadian, adult or child, could be stored on a few reels of computer tape and could be dispatched over





communication lines to almost any point in the country, or outside it. There are thus no technical obstacles, or soon will be none, to prevent anyone from amassing or accessing whatever data he chooses. Computers also tend to exaggerate the importance of certain types of data -- the quantifiable as compared with the unquantifiable, the subjective and the intuitive -- not because of the intrinsic merit of such data but because its extrinsic characteristics match those of automated information systems. The more we come to rely upon computers as sources for the information upon which decisions are made, the greater the danger of making decisions which take insufficient account of the ambiguities, nuances and the crowd of human frailties which cannot be measured but which make our social system tolerable.

Further, the nature of computers, which can be modified though perhaps not fully reversed by employing communications systems, is such as to centralize the storage of data and hence tend to centralize political and corporate decision-making. This tendency could impede or reduce the effectiveness of attempts to decentralize decision-making, attempts which in turn reflect the evident need, and demand, of citizens to participate in the process of governing themselves.

As computers enter their fourth generation they still remain a long way from fulfilling their full potential. As machines for information retrieval they are still at the beginning of their own evolution. Significant constraints, of memory capacity, access speeds and in the power and flexibility of retrieval language programs, remain to be resolved. And cost remains the most significant restraint of all.



Nevertheless the trend toward greater computer power and efficiency is unmistakable. The question arises whether it has been discerned sufficiently in advance for safeguards to be developed before the potential social issues created by information systems become critical, and by critical I mean here irreversible. Before that fundamental question can be treated, three specific aspects of the problem need to be considered.

First. Computers and privacy is now the subject of extensive inquiries in several European countries, by organizations such as OECD and the European Council of Ministers, by special committees established by Parliament and by the Government in Britain, by Senator Ervin's Senate Sub-Committee in Washington and also in the United States by studies organized for the National Academy of Science by Professor Alan Westin and for the National Science Foundation by Professor Arthur Miller. We can learn a great deal from these studies, although any results will have to be related to our particular political and economic structures. In addition we face one problem unique to ourselves. In the computer industry perhaps more than in any other Canadian industry, the north-south pull is dominant and indeed almost overwhelming. So far as record-keeping systems, whether manual or automated, are concerned, the data on the credit and life insurance records of many Canadians are stored south of the border in response to the pull of cost efficiency. As has been said, a nation that loses control of its own information loses control of its own future.

Second. At the present time automated information systems, like the manual information systems which preceded them and which remain in





extensive use, are dispersed, one from another. Major gains in productivity and efficiency can be achieved by integrating data banks. At the same time the phenomenon of conglomerates creates a situation in which a single financial entity may find itself, by accident, the owner of say an insurance company, a credit company, a mailing list company, an employment agency. The commercial benefits to be gained by integrating these files are apparent. It is therefore reasonable to anticipate a mounting pressure within and without governments for the integration of independent data banks including those cases where information gathered for a particular purpose, such as for example medical records, may be merged with say financial or other personal data. Decisions will have to be made about the points at which the benefits of efficiency are outweighed by the costs of the loss of privacy.

Third. Although specific answers to the issue of computers and privacy may be found in the disciplines of law and of technology, the essential answers can only be found in the realm of politics; I would go further and say that these political decisions will relate less to the kind of computer systems we want than to the kind of society we want.

Political decisions of such dimensions are a new phenomenon. In the past a rough and ready policy of technological laissez-faire has operated: whatever could be invented was invented, and if the product was profitable it was marketed in whatever quantity was needed. It is becoming increasingly apparent that these considerations, however valid by certain standards, are not, by themselves, enough.

As I said earlier, information systems long preceded the computer



and these machines have arrived just in time to enable us to cope with the volumes of information we have taught ourselves to need. But are not computers also a factor in the very creation of these mountains of data? By sheer efficiency, could they not magnify existing trends to the point where they become irreversible, not from any lack of continuing political power to make the right decisions to check the dangers but from a lack of political will to make such decisions in a society which may come to accept unrestrained information systems as normal, and therefore the absence of privacy as also normal? In sum, may not a quantum increase in quantity cause a corresponding change in quality?

The essential question to my mind is whether the addition of the computer to our bag of tools will merely complicate our lives a little but leave us living in the same kind of society we have known for generations so that problems created by the computer can be resolved by a few "social controls" here and there, a new piece of legislation, a new licensing policy, some new procedures, all applied by planners and technocrats in order to make sure that the machines work in a reasonably satisfactory manner, and certainly in a rational one; or whether the computer is not a tool but a trumpet whose sounds mark the beginning of the dissolution of the texture, the fabric and the structures of our old society and the dissolution of many of the values that relate to it.

I have no answer to this question but I do know, or at any rate believe profoundly, that it is the kind of question that is going to confront us more and more often as technology cascades down upon us. What is encouraging is that there is concrete evidence, in this country and in several others, that the public in general and governments in particular are aware of the issue and are prepared to act when specific solutions are





defined, as they have been for some of the problems of the physical environment.

At Ottawa an increasing amount of attention has been devoted to the issue of computers and privacy. The Conference at Queen's University, which was co-sponsored by the Departments of Communications and Justice and by the Canadian Information Processing Society drew together for four days some 200 interested individuals from a wide variety of backgrounds including the law, social science, medicine, education, computer science, business and public administration. Until that point only a handful of people in Canada, notable among them Calvin Gotlieb, had discerned the nature of the problem and had written and spoken about it. A report on the Conference is being made available as part of the Telecommission series.

Following the Conference the Departments of Communications and Justice have jointly established a special Task Force to study the issue in detail. Besides officers of the Departments, some 15 consultants among them Professors Gotlieb and Hume from this University, have joined the Task Force and are engaged in twelve major studies: an exploration of the nature of privacy in all its dimensions and the construction of conceptual models of possible solutions; empirical studies of the information processing practices of government agencies; public institutions and private companies; long-range technological developments; statistical data banks; security procedures and safeguards; legal remedies; administrative or regulatory remedies; self-regulatory remedies; constitutional considerations. Work began in mid-April and the basic data-gathering and analysis phase is due to be completed in mid-September. A report will be prepared and published in parallel with but separate from the work of the Computer/Communications Task Force which is scheduled to conclude around the end of this year.



The terms of reference of the Privacy and Computers Task Force are: "To consider rights and related values appurtenant to the individual and issues raised by possible (and I stress the word possible) invasions of privacy through the collection, storage, processing and use of data contained in automated information systems". Its basic function therefore is to draw a map of what is now happening and of what may happen and then to examine, where specific problems are identified, possible alternative solutions.

The third step in the continuing process will succeed the completion of the Task Force report and plainly its nature will depend upon the content and merit of the report. On the basis of the findings of the report the Government will be able to consider rules and procedures for the operation of its own data banks which could serve as a model for other operators. Beyond this, discussions will need to be held with data bank operators and users both public and private, and with interested governments, and forums may need to be established to obtain expressions of public opinion on the matter.

Since the process of detailed investigation has only begun -- and I might mention here that the Task Force has requested briefs from all Associations and organizations who might be interested, will shortly be circulating a detailed questionnaire to several thousand companies and institutions and has initiated a series of extensive site interviews with those organizations which maintain major information systems -- it is plainly premature to discuss possible solutions. Nevertheless it is evident that remedies may be found within three broad headings.

Remedies may be found by recourse to the law itself. Within the



Task Force the Department of Justice is applying its expertise to the examination of possible legal remedies. Having been myself trained, and probably over-trained, as a lawyer, it may be useful at this point to sketch, in a general way, some of the legal considerations which surround this question.

Laws do exist, have existed for many years, which protect certain areas of an individual's private life. There are laws governing libel and slander, laws concerning wire-tapping and electronic surveillance, laws governing trespass. In the United States a "right to privacy" as such can be found in certain tort cases which followed the publication of the famous Warren and Brandeis article. In British Columbia legislation exists which makes invasions of privacy beyond those of simple trespass a tort actionable without proof of damages. At the international level the United Nations Declaration of Human Rights and the Covenant on Civil and Political Rights include clauses to protect individuals against unjustified intrusions into their private affairs but neither document is binding upon states. And while the issue of the balance of power between an individual and organizations is of the political rather than the legal order, the State of New York and more recently the Province of Ontario have passed Credit Reporting legislation which should increase the ability of individuals to assert their rights in dealing with credit agencies.

The private law as it now exists, however, is built upon the principle of compensation for damages suffered; it offers no opportunities for recourse in those instances where an individual does not know that information about him is being collected or disseminated, nor in those instances when the damage is psychological rather than pecuniary. One





writer has suggested that a "right of personality" or a "right of individual dignity" might be more appropriate than a "right of privacy", and there is legal precedent in the libel and slander laws for recompense for other than financial damage.

The challenge therefore may be to devise a new legal framework within which privacy as such can become a judicially expressible value that can be measured and therefore be protected. This challenge is even more taxing because it will have to be executed within the particular context of information systems. And finally, as the Minister of Justice has said, the law is always in danger of being one step behind technology. This is nowhere more evident than in the field of information technology: our copyright laws, already undermined by the Xerox machine, could be made obsolete by the development of new computerized systems, by direct broadcast satellites and by home video-recording machines. Thus any laws developed to protect individuals against intrusions of privacy arising out of the misuse of information systems will have to take account of the constantly changing nature of the technology upon which the information systems are built.

Some authorities, notably Arthur Miller in his recently-published book, The Assault on Privacy, have examined exhaustively the possibilities afforded within private law for protecting privacy, have reached the conclusion that none are sufficient, and have turned instead to the second category of possible remedies, that of regulation. Regulation of course implies the development of a set of rules to govern the operation of information systems. Many rules have been proposed: to grant individuals a right to access their own files and to correct erroneous information; a



requirement for a record to be maintained of all uses made of materials contained in the files; a requirement to expunge data of a sensitive nature, such as financial or marital misfortunes or legal judgments, after a prescribed period of time. Any rules would have to be devised with great care so that unnecessary inefficiencies or cost burdens are not imposed upon the operation of data banks. A due-process procedure would have to be developed to adjudicate complaints of breaches of the rules. The most considerable difficulty in the regulatory approach, I would hazard, will prove to be to define the circumstances under which the established rules should apply; some data banks contain only public information, others only statistical data, while the term "data banks" itself, unless carefully defined, could apply to the personal files each of us keeps in our desk drawer, or even to a telephone book.

The third avenue to be explored is that of self-regulation by the industry itself. The potential weakness in the self-regulatory approach may reside in the fact that an industry, unlike a profession, lacks the ability to control entry into its ranks and therefore the ability to discipline effectively breaches of established rules. A further question of course can be raised about the effectiveness of professional regulation itself, since all self-regulation means that a profession, or industry, is inviting its members to accept voluntarily rules to which a certain cost is attached.

The mandate of the Task Force is first to examine the entire problem, in of course far greater detail and precision than I have been able to do, and then to evaluate in a preliminary way, all possible remedies.





This is a challenge of a very high order, made incomparably more difficult by the lack of precision or definition to the challenge itself. And yet, as I have said, I am convinced that this is the kind of intellectual enterprise which those charged with a responsibility for the public interest will be required more and more often to undertake. A technological society is developing around us and its dynamic is challenging many of our traditional values and beliefs. In particular this technology may threaten the sovereignty of the individual upon which our social structure is based. Our challenge is to make certain both that the enormous benefits made possible by computer power are placed at the service of all individuals, and equally to ensure that this same power is not allowed to circumscribe or suffocate our individuality, and therefore our dignity as independent human beings.



Speech delivered by  
HON. ROBERT STANBURY  
Minister of Communications

at the opening ceremonies  
of the  
Second Annual Computer Show



Toronto, September 15, 1971



Your invitation arrived as I was immersed in some of the complex issues in the field of computer communications which are being examined by a task force for our department. So, welcome as the invitation was, it was with some small twinges of anxiety that I accepted it. However, I was assured that this would not be an occasion for weighty policy statements; that nobody here would be disappointed, for instance, if I did not announce this afternoon the Government's intention to nationalize the telecommunications industry, or the computer industry, or both.

Perhaps your expectations were aroused last week by some of the more imaginative press speculation about the Science Council's recommendations on computer communications. I wondered if the Prime Minister had been keeping something from me. But now that I have seen the Council's report, I feel secure in saying that we have no plans to form one big Crown corporation to run your industry, or anybody else's for that matter. In fact, I don't think that has been suggested either by the Council or by our department. I assure you that the Computer/Communications Task Force is alive and well and working on a series of recommendations which will be our guide in **formulating** our national policy on computer communications.

In the past year or so particularly I have become more than a little aware of the social, economic and, yes, even political power of information. I have also seen some of the problems inherent in the distribution and **use of** information essential to a democratic society in its economic as well as its political activities.





I have been greatly impressed by the power of the computer. I agree with my predecessor that harnessing this power for greater economic, social and cultural benefit of Canadians and Canada is among the greatest challenges facing policy-makers in this and the final decades of the 20th century.

Although public attention has tended recently to be focussed upon the information aspects of electronic data-processing, I think it is well to remember that computers have become an essential tool in a far wider context. In fact, it is hard to think of any modern activity that does not, in some way or another, make use of computers.

It is this very ubiquity, this omnipresence, which makes the computer and its associated industries so important to Canada.

As might be expected, universities have been among the first to make use of computer power. That is why the Department of Communications recently decided to encourage a systematic study of university needs which might be satisfied by the creation of a Canadian university network. As a result, we have now awarded the University of Quebec a \$75,000 contract to conduct a feasibility study for a project called CANUNET.

The rapid advances in computer and allied communications technology, coupled with a significant reduction in computer costs, have been made possible in large part by the creative energies of the industry. I would like to take this opportunity to congratulate all those concerned -- particularly in our own country -- for their significant achievements.



I welcome the opportunity that this show affords me to see the latest advances in modern interface devices. It is these and allied developments that will encourage the orderly growth of an effective computer/communications system in Canada.

However, it is the specific field of data-processing that offers the greatest potential for the enhancement of the quality of Canadian life. This potential flows from the proverbial relationship between information and power -- the power to decide, the power to act. Computer communications systems which help to distribute this capacity to organize and disseminate information will have an impact on virtually every element of Canadian society.

Many and diverse applications of computer communications are already changing our lives, as you well know. While these are impressive enough, it is the promise of future developments which catches the imagination.

We are given glimpses of a cashless society, of wired cities, of computer-aided home instruction geared to the pace and individual requirements of the student; of easily accessible nation-wide encyclopedias of information.

The implication is clear that the marriage of communications and computer technology presents our society with tremendous opportunities for human development on a scale previously impossible to envisage.

On the other side of the coin, however -- equally if not more significant -- are the potentially serious sociological and economic strains implicit in these developments and the pace at which they are taking place.





Should every citizen, no matter where he or she lives, have equal access to these benefits? How can the inherent promise of a means to bring closer together our widely dispersed population be translated into reality? How is individual privacy, and even freedom, to be adequately protected? Where should we place priority in applying limited national resources?

To my mind, these and the many related questions emphasize that the key to future success lies in a co-operative effort from all involved -- manufacturer, user and all levels of government.

The interest of the Canadian government in the computer communications field and in the far-ranging implications of its developments is not new.

Many of you will recall that in 1969, not long after formation of the Department of Communications, it undertook a major survey (the Telecommission) with the object of achieving a better understanding and definition of the nature and scope of federal government responsibilities in telecommunications.

One of the earliest results of the Telecommission studies was the realization that any communications policy at the national level had to include the rapidly growing remote computer services industry.

One step in the development of public discussion and dialogue was the tabling of a preliminary report dealing with the issue of participation by the telecommunications carriers in public data-processing. This document was presented to Parliament in 1970.



Subsequently the Minister of Communications set up a task force with the overall objective of recommending specific policies and, if deemed necessary, institutions, to ensure the orderly, rational and efficient growth of computer communications systems in the public interest.

The Computer/Communications Task Force is an autonomous body, not a branch or bureau of the Department of Communications. Its conclusions and recommendations will flow freely from facts and opinions gathered from a wide variety of sources, most of them outside the Department. The work of the Telecommission and the special study on common carrier participation are valuable contributions. So is the Science Council's report which suggests the creation of an integration agency to promote the planning and deployment of a Trans-Canada digital "spine". Equal attention and importance is attached to the submissions from computer and communications industries, from consumer associations and other segments of the public. Hundreds of submissions have been received, carefully studied and will contribute significantly to the result. This is a process vital to Canada's future -- one which demands the widest consultation and understanding.

That is also the purpose and effect, I am sure, of the Canadian Computer Show and the conference concurrent with it. This is not just an impressive exhibition of computers and data-processing equipment but also an important meeting place of experts from the many fields associated with this new technology -- a meeting of minds, which are the most precious of our resources.



Now, I take great pleasure in declaring this second annual Canadian Computer Show officially open, and I wish all associated with it and the conference every success during this Information Processing Week.





NOTES FOR A SPEECH BY

HON. ROBERT STANBURY, P.C., M.P.  
(York-Scarborough)

MINISTER OF COMMUNICATIONS

AT THE

INTERNATIONAL COUNCIL FOR EDUCATION MEDIA CONFERENCE

Wednesday, October 6th, 1971

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Montreal, Quebec





When I started to school -- just a few years ago -- neither my teachers nor I knew the term "education media". If we had, it would have meant to us textbooks, a blackboard and some squeaky chalk. Today it embraces the most exotic, complex and seemingly endless array of electronic miracles.

That comparison, between nostalgic memories and the communications reality of today, gives me pause. But so does another of more recent memory. Television came to Canada at just about the time I was leaving university. I remember well the speculation, idealistic and well-intentioned, that surrounded TV in those days of its infancy. Here, we were told, was a new medium that would provide a priceless means of informing the public, that would revolutionize our educational system, that would extend the benefits of education to everyone, rich or poor, young or old.

Very little of that, as all of you know, happened. Seldom has a marriage taken so long to consummate successfully as the marriage of education and communications technology. What went wrong? I will try to answer the question, not to indulge in any facile exercise of hindsight but because I believe it is a pertinent question today and because I think there is now concrete evidence that finally education and communications technology are coming into fruitful union.

The first explanation for those long years of apparent failure is simple enough: too much was expected. The quality of an educational system is not, in its essentials, dependent upon the quality of its technology -- any more than it is



dependent upon the quality of school buildings. It is a function of the social, political and economic climate in which that system operates. Technology and buildings are important, but they cannot alone ensure excellence.

Secondly, technology cannot by itself solve a problem in education; it provides a means by which a problem may be solved. This is another way of saying that the medium is not the message, although very plainly the medium and the particular characteristics of particular media do have a substantial impact on the nature of the message. It is the content of the technology that is ultimately important, and for a number of years now the hard, inescapable truth has been that the attempt to combine education and television has far more often than not produced poor education and boring television.

Thirdly, the technology was primitive, and for this reason alone the expectations aroused for it were premature. Much of early educational television simply reinforced the lock-step system that has been identified as one of the fundamental weaknesses of our educational system: programs were broadcast at set hours and students had to watch them (or miss them) whether or not the particular programs were relevant or timely for those students.

Those errors and over-expectations of the past are worth mentioning only because we are now facing a new environment. The technology itself, while many improvements can and must still be made, is no longer primitive. Computer assisted instruction





and VTR systems no longer reinforce the lock-step approach, but free student and teacher to advance at their own pace. Even though there are still important cost considerations to be overcome, we can see some progress toward the goal of individualized instruction. Content remains a problem, but the programming expertise that once was confined to commercial television is now becoming dispersed and more and more individuals are able to develop high-quality programs. And we have learned not to expect an overnight revolution, but to test, to experiment, to try out alternatives.

There is another broader and perhaps more speculative reason for the changed climate: we are living, we are told daily, in an age of communications. Our children are children of the media. My elder daughter, as a babe-in-arms -- was pointed toward Canada's first television program. She has just started to university, and if she is an average child she has watched 20,000 hours of television -- that is, 20,000 hours of information, impressions, ideas. She has learned not only in the home and perhaps the church as she would have a hundred years ago, nor only in the home and the classroom as she would have a few decades ago. Today's child learns from these institutions, but he or she also learns from the mass media. Any attempt to distinguish between the educational role of the classroom and the educational role of the media at large is becoming less and less meaningful: both are merging into a larger process of learning. The implications of this phenomenon for the educational system are profound.



In the first place, the parent, priest and teacher are no longer the sole sources of authority. They have to compete with electronic authority figures whose persona, magnified by the media environment, tend to become larger than life.

Nor is the teacher the sole source of knowledge. Knowledge is introduced into the classroom from outside. In a federal state such as Canada, films or tapes shown in the classrooms of one province may, and often do, originate in another province; they may even originate in another country. Technology breaks through parochial boundaries; each school becomes intimately connected to the wider world. In some cases this connection is physical: computer assisted instruction systems, using computer links, involve a central processing complex in one center connected through terminals to schools located perhaps hundreds of miles away. Distance is destroyed, and if not knowledge at least information moves uninterrupted across artificial boundaries.

Not only is knowledge introduced into the classroom, it is originated within the classroom by the students as they learn to produce their own films and tapes, or how to converse in real-time with a computer.

Given this new environment, it is no accident that there is today so much interest in, and expectation about, the role of the media in the educational process. The report Towards 2000, completed this year for the Council of Presidents of Ontario Universities, has this to say:

"The educational processes of the future should be such that they provide for continuity and the acquisition of higher qualifications.



All those on professional teams will be linked together by new applications of computer technology, for example, medical diagnosis, library retrieval and programmed learning. The last mentioned of these computer applications remind us that new technologies are being and will continue even more to be applied to the educational processes. Many who feel overwhelmed at the increasing cost of post-secondary education look to the new technology to make savings."

In Canada, after a prolonged drought, there are now many signs of concrete attempts to apply the benefits of communications technology to the education process. The province of Ontario, for example, has established the Ontario Educational Communications Authority and UHF Channel 19 in Toronto is now into its second season of production, with plans to establish other UHF education television channels across the province. One of the most ambitious projects is underway in this province of Quebec in suburban Laval, just north of Montreal. A new CEGEP, or community college, will open next year, but already teachers are recording programs to be shown over closed-circuit television. In addition to the conventional library for 2,000 students, this school will have 1,200 audio-tapes, 300 video-tapes and more than 10,000 slides and transparencies. Students will spend only about 20% of their time in traditional classrooms.

All Canadian provinces cannot afford to use educational technology on this scale. However, in Newfoundland, Memorial University is this year offering a total of seven off-campus credit courses to students, mostly adults, in 26 small communities, some as much as 600 miles from the university, by means of video-taped lectures and programs sent to each of these centers. This Newfoundland program is, in my judgment,





a shining example of how to substitute imagination for money. The average school board expenditure per pupil in Newfoundland, and in another Atlantic Province, New Brunswick, amounted to \$350 in 1969-70; in Ontario and Quebec, and in British Columbia, it was some \$700 per student, or almost double the outlay.

As the report of the Council of the Presidents of Ontario Universities said, "many look to the new technology to make savings." Those savings, however, are likely to be indirect rather than direct. The quality of teaching should improve but the cost of teaching is unlikely to be reduced, particularly when the high capital cost of most communications technology systems is considered, as well as the artificial costs forced upon users by the lack of compatibility between systems and by the constant commercial marketing of new models.

We cannot always rely on imagination to substitute for money. There is a danger that the growing use of technology in education will create disparities between educational systems within a country, with urban systems pulling still further ahead of those in rural areas, and a parallel danger of widening disparities between educational systems in the advanced and in the developing countries.

We are confronted, it seems to me, by two broad problems. The first is how best to apply specific communications technology to specific systems -- how to learn for instance, when a slide carousel will do the job rather than some exotic combination of multiple-channel cable system and video-recorders - - and how to develop programs that instruct as well as entertain without either quality drowning out the other. The



second problem is how, in a social environment where the classroom is intimately connected to the outside world through the pervasive presence of the media, to manage educational technology in the best interests of society.

Among management issues which have to be addressed, there is the problem of foreign content, which is a particular concern of Canada and which has attracted the attention of UNESCO; the problem of standardization and compatibility of equipment; the problem of disseminating effectively the results of projects, successful and unsuccessful, so that the good are repeated and the bad used as object lessons; the problem of ensuring that technology does not widen disparities but reduces them by extending the benefits of high quality education -- not just between school systems in different economic regions but also between groups in society (and here a major challenge is developing in the demand, and need, of adults for access to continuing education); the problem of relating the role of the communications media in education to their role within society as whole.

In dealing with these management problems I believe we are going to have to develop new styles of cooperation -- between educators and engineers, between students and teachers on the one hand and film-makers and computer programmers on the other, between governments at every level including international.

An organization such as the International Council for Education Media can play a most useful role in developing and encouraging these new forms of cooperation. This Conference itself is an excellent example.



Mr. Chairman, I congratulate you and your colleagues on your initiative, I welcome all of you who are visitors to our country and I wish you every success in your work which is of such vital global importance.





Notes for a speech by

HON. ROBERT STANBURY, P.C., M.P.

(York-Scarborough)

MINISTER OF COMMUNICATIONS

at the

ANNUAL GRADUATION CEREMONIES

SHAW COLLEGES

Saturday, October 16, 1971

Eaton Auditorium

Toronto, Ontario

OCT 29 1971  
UNIVERSITY OF TORONTO



Anyone making a speech to any kind of graduating class anywhere at any time is expected to peer sagely into the future, giving glimpses of the promises and challenges that the coming years may bring, especially to those who are being launched from the educational pad into life's orbit.

About the safest thing that can be said of the future at this or any other time is that it will bring changes. These changes can be frightening and dangerous or challenging and uplifting, depending on how well we understand and control them. Another thing that we can say with some assurance is that the rate of change is accelerating. It took seven or eight centuries to move from development of the harness, that allowed our medieval ancestors to use the horse effectively as a draught animal, to the invention of the horseless carriage. It has taken less than seven decades to move from the take-off of the first airplane at Kitty Hawk to the landing of Apollo 11 on the moon.

This capacity to move people and things at great speed is more than matched by our growing capacity to move information and ideas across vast distances at the speed of light. After all, the communications system that brought the moon landing to our earthbound television sets was no less complex and marvelous than the system that put men on the moon.



The revolutionary developments in communications coming thick and fast are not only symptoms of a rapidly changing world; they are also the motors that will generate profound changes in our ways of learning, working and enjoying our increasing hours of leisure.

Where are these motors likely to propel us in the next few years? Well, by the 1980s or 90s -- when you who are graduating today will be at the mid-point of your careers -- we may have used technology that already exists to create "wired cities" of such communications capacity that many of you could be working at home. That might be cheaper and kinder to our environment than transporting everybody to more and bigger skyscrapers and housing them there all day. The team that works together today in one space called an office could be scattered across a city or even across a continent. Each of us might be equipped with a cluster of communications terminals which could include something like today's telephone, video screen and camera, teletype and facsimile machine to transmit and receive copies of documents, charts and drawings from afar. The files now kept in metal cabinets close by our desks could be stored electronically in the memory bank of a computer thousands of miles away, yet available as quickly or more so.

The people connected to such a communications or information system won't have to share the same physical space, nor even the same time frame.





Consider this scenario: Sleepless executive decides to put insomnia to productive use. He, or she, at 3 a.m. goes to the household communications console and records dictation for an hour; then, before dozing off, dials the communications console of his, or her, secretary, where a signal light goes on. Sleeping secretary sleeps on undisturbed, until awakened by small child demanding breakfast; she, or he, feeds small child and husband, or wife, then carries coffee to communications console to see whether there is work to be done; sees the light, feeds the recording into a computer which converts the spoken words into print; corrects its spelling where words that sound alike are spelled differently, like "lead" the metal and "led" the past tense of the verb "lead"; then dials the executive's console which lights up to indicate that a completed document is ready for approval. Executive (by this time sleeping soundly) gets all the rest he needs, wakes up, sees the light; checks the document by video screen or facsimile machine, approves it and transmits it to a console at its destination or to a post office for delivery by a postman. Meanwhile, the filing computer has taken the final text into its memory bank.

This high-capacity communications system, instead of moving people or pieces of paper from place to place, moves electrical impulses. The same process that revolutionizes the time and space dimensions of our work can be applied to our financial affairs, our entertainment and our education.



Do you like the picture? Well, this scenario of our lifestyle in the '80s or '90s is semi-fictional, even fanciful, I must admit. What technology makes possible, costs render improbable. And we may not feel like changing our lives so drastically, so rapidly, or in that direction. We will decide, after all, what we want machines to do for us.

We will certainly be able to change our lives and our work through this technology of computers and cables. We will be presented with new opportunities calling for new skills in a work environment of continuous learning. That does not mean that the skills we will use ten years from now will be entirely different. Training in the use of modern business machinery and techniques of today will be a sound basis for mastering those of tomorrow. For instance, the transition from an electric typewriter to the keyboard of a computer terminal is not so great; the new skill can be learned in a matter of days. What will change is the balance between purely mechanical work and more creative activities. There should be more scope in all office occupations for exercise of managerial skills, and for satisfaction in our work. This, together with the potential of future communications systems to free us from the constraints of working always at the same time and same place each day, may help all of us to achieve greater creativity.

Earlier, in my futuristic scenario, I identified the executive as either a man or woman and the secretary as a woman or a man. That does not seem to me fanciful, however realistic was the rest of the picture I painted. I suggest that, whatever



Women's Lib accomplishes, communications technology will place more women in the executive's role. The possibility of decentralizing office work will not appeal to those who prefer to keep their work and home quite separate. But communications will provide new opportunities for women as well as men by making us all less the slaves of time and place.

Not only change but education and training for change will be outstanding features of the next decade. I have suggested that communications technology will be a powerful cause of changes that will require an ongoing process of lifetime education. Fortunately, communications technology also provides some of the ways in which continuing education can be made available to all, perhaps even in their homes.

Just as we can visualize the vanishing office, we can easily picture the vanishing schoolhouse. We are beginning to understand what television could do to our educational system. Programs like Sesame Street bring some of the most advanced educational techniques into homes all over the North American continent. Educational television programs for adults as well as school children will be available in most urban centres within the next few years. But television is only one element of a sophisticated technology that is being developed to distribute education more widely and more quickly. Computers can be used for a lot more than calculating and storing administrative information. They can be programmed to teach people all sorts of things -- from how to use a computer





to how to solve differential equations.

New computer programs, being developed here in Canada as well as elsewhere, allow students to converse, so to speak, with a teaching computer. The computer gives the student information, then asks questions. It is programmed to catch errors and to review the material on which the student needs more knowledge.

Computer assisted learning is being explored at our National Research Council in Ottawa. The Department of Communications also has sponsored projects to help high schools and universities to use the latest communications and computer systems. One of these, the CANUNET project, is a study being conducted by Canadian universities to see if it is possible to design a computer/communications network that will serve the collective needs of all or most universities in the country.

Much more research and collaboration will be needed among governments and other institutions if we are to assure that the full promise of computers, television and other new educational media is developed here in Canada to meet Canadian needs. Obviously, there is a danger that as we develop systems to carry educational programs directly into households across Canada we shall bypass the structures and institutions that we have built up over a century to provide public education in each of our provinces. Supposing it becomes possible for a family to dial up a computerized mathematics course from Columbia



University in New York City, or a language course from Rome, what happens to our teachers, our school boards, our departments of education and our concern for a national identity? Without isolating ourselves from the knowledge and the culture of other countries, surely we will want to try to ensure that our electronic educational systems of the next few decades will reflect Canadian creativity, Canadian teaching skills and Canadian values, while being fully responsive to provincial policies and priorities. For my part, I hope to bring forward in the next few months programs that will help make possible the development of economical standardized educational media systems in collaboration with departments of education and universities in all parts of Canada.

A concern for the effects that new technology will have on the users has been basic to our planning of new communications systems to serve our far North when ANIK, Canada's own communications satellite, goes into operation early in 1973. As a new way of meeting Canada's future communications requirements, the federal government has established Telesat Canada to own and operate the western world's first domestic communications satellite on a commercial basis. One of the main social purposes of this action was to provide more reliable communication services in the Canadian North, and systems planning is proceeding to ensure the most complete possible telecommunication coverage.

Some concern has been expressed that improved



communications will destroy the diverse native cultures of the North. However, I believe on the contrary they can be better preserved as well as other cultural and economic developments made possible by better communications.

Twenty-five earth stations will permit reception of live television in northern communities. Two large telecommunication stations at Frobisher Bay and Resolute Bay will provide excellent telecommunication services to these large regional centers in the Eastern Arctic for the first time.

The Department of Communications sponsored a conference at Yellowknife in 1970 to ensure that the requirements and priorities of northern residents were appreciated in the planning stages. The most important recommendation of the conference was that steps should be taken urgently to improve two-way communications in smaller communities of native people in the Districts of Keewatin and Franklin. I am glad that intensive studies by my department, in cooperation with Telesat Canada, Bell Canada, CBC, and CN Telecommunications have resulted in a small station concept that will meet these needs. Decisions have been made for about a dozen such stations to be installed during 1973 in those parts of the Northwest Territories which now have inadequate communications. These stations will provide the full gamut of message services--telephone, Telex or TWX, facsimile, teletype and data circuits. They will also have





the capability of receiving radio program circuits, the need for which was stressed by northern citizens at the Yellowknife conference.

ANIK is only the first step in a process to establish reliable satellite communications everywhere in the North. Satellites are eminently flexible instruments which will help in the coming years to resolve many communications problems. The satellite alone is not enough; it can do many things that no other technique of communications can achieve, but it cannot and has never been planned to meet all communication needs.

In my department, particular attention will be given in the next year to the greater involvement of residents of remote communities in communication programs and projects. One example is the so-called "community phone project" being undertaken at Rankin Inlet in conjunction with the CBC, Bell Canada and Bell Northern Laboratories, which will combine some of the characteristics of a broadcasting station with those of a telephone conference call. Another is a northern communications group which will be established in my department to ensure that: (a) residents of remote communities are consulted and involved in the planning of communication initiatives; (b) communication needs of the public, governments and industries in the North are understood; (c) implementation of approved services in cooperation with the Territorial governments and the telecommunication common carriers is vigorously pursued; (d) training of native young people for employment in the communications industry is encouraged. A permanent departmental office will be opened in the





Northwest Territories to ensure that these plans are developed in harmony with the desires of residents of these regions. The people of the North must have more opportunity than they have had in the past to contribute to the development and management of northern communications.

Through Telesat and through the programs of my department, perhaps some of the technology that I described earlier will be made available to all Canadians much sooner, more economically and with more constructive human effects than it might have been if we had simply let ourselves become the passive followers of each new electronic marvel that is thrust into our lives.

Through Shaw Colleges, perhaps each of you who are graduating today will be able to use the technology in your future more productively, more creatively and more constructively for your family, your community and your country.

I congratulate you on the achievement that brings you here today and I wish you continuing success in a future that will be full of change, full of challenge and full of promise.



THE CHALLENGE TO GOVERNMENTS OF COMPUTER COMMUNICATIONS

Speech delivered by

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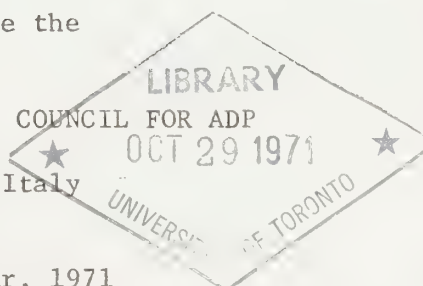
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## THE CHALLENGE TO GOVERNMENTS OF COMPUTER COMMUNICATIONS

### Introduction

The decade of the sixties just passed saw many major technological accomplishments but most people, if questioned, would probably place the exploration of space, culminating in the Lunar Landing of 1969, as the greatest of these achievements. On the other hand, I have a feeling that when future historians come to write the history of our time, it will not be space flight, but rather developments in computers and communications that they will pick as constituting the most significant event of the nineteen sixties. For it was during the last decade, that we witnessed the emergence and rapid evolution of combined computer communications systems or computer utilities as they are often loosely called and thus opened the door to the possibility of a world as different from that of today as ours is from that of stone age man.

During the next decade, it seems likely that we will see an explosive growth of these new form of social endeavour until computer communications networks crisscross the globe and make the computer as much a part of the daily lives of everyone as the telephone is today. Such a development has the most profound implications for both the nature and quality of human society. Indeed the eventual impact may well be more significant and far reaching than the invention of moveable type - perhaps comparable even to the development of written language.





Obviously, an event of such fundamental importance is of vital concern to governments everywhere and over the next decade, both national governments and international organizations will be faced with many basic decisions that are of vital importance to all mankind. In addition, governments in most countries are already so intimately involved with both computers and communications as operators and users of systems that they constitute the most important factor in determining the pace and scale of future developments. Consequently, I feel that it is particularly appropriate for the Intergovernmental Council for ADP to be considering the subject of computer communications at this time.

#### Nature of the Challenge

Some of the developments that governments are likely to be faced with were described in a recent Canadian Government report on Computer Utilities and included:

Universal Access to Knowledge - in which the total accumulated knowledge and experience of all mankind is continuously distilled and made available in any desired concentration to everyone via personal information terminals.

Individualized Computer Assisted Instruction - so that education becomes independent of age and geographical location and is transformed into a continuing process in which anyone who has access to an information terminal is provided with the equivalent of a private tutor precisely tailored to his personal needs.



Pervasive Interactive Processing - in which the computer is fully integrated into every aspect of our lives whether in home or office and computer power becomes as abundant and as effortless to employ as electric power is today.

An Integrated Economy - largely automated and with all of the myriad industrial distribution and business functions becoming in effect a single distributed machine controlled and linked together by the national computer networks.

And finally and perhaps of greatest long-term significance Decentralization - for with the development of a "communications affluent" society in which the techniques of television, computer graphics, computerized data bases, data-processing and normal telecommunications are combined and their services made universally available via "fireside" terminals, many of the pressures for urbanization may be reversed. If people can access and manipulate any piece of information without leaving their homes and simultaneously interact with other people and machines as easily as if they were sitting in the same room with them, then there would seem to be little reason for concentrating workers in large office buildings. Just as was mentioned for education, they might better conduct their routine business activities from the comfort of their homes and gather together only for formal affairs, laboratory work and social occasions.

This list could of course be continued indefinitely and include possibilities like the cashless society, true participatory democracy, automatic publishing and all of the other innovations that lie just over the horizon of the future. The precise details of the list,



however, are unimportant. For the promise of computer/communications systems lies not in any particular function or service but rather in the possibility of making information services in whatever forms they may evolve available to every human being, so that the computer's enormous manipulative storage and processing power can be used to multiply by orders of magnitude the capabilities of everyone and lift all mankind to unprecedented levels of achievement. Indeed, it is predicted by some that in the post-industrial society, information processing power per capita may very well become the principal indicator of a nation's wealth.

The creation of such a society and the avoidance of the myriad dangers and false paths on the way to its realization involves a multitude of major policy issues whose resolution depends upon the answers to a veritable universe of questions including:

- a) Where are the boundaries between communications and processing?
- b) Who should reap the benefits of computer utilities?
- c) Who should own the utilities?
- d) How should rates be set?
- e) What is the proper balance between social objectives and private gain? Indeed what is the "public interest"?
- f) How can we determine and balance social utility with respect to economic utility?
- g) What is private information?
- h) What is public information?
- i) How can we guarantee freedom of access?



- j) How will the individual be affected?
- k) What will be the impact on democracy?
- l) What will happen to our value structures?

All of these questions were recently summarized in the previously mentioned Canadian Government report in the form of what was termed a "fundamental policy question".

"How can Canada best exploit the computer utility concept to make the potentially revolutionary benefits of computer power available to the entire public and at the same time provide effective safeguards against the misuse of that power?"

Global questions of this sort have a wonderful ring to them and sound very impressive when repeated quickly. They may even be useful in setting the broad boundary conditions for a solution. On the other hand, they can also mask the real complexity and difficulty of the myriad problems that they encompass. In our case, for example, the questions include: the optimum means for ensuring equitable access to the benefits of computer power to the widest possible number of people and industries wherever located, the critical civil liberties problems of privacy and freedom of speech, the many questions concerning ownership, the relative priorities of the almost unlimited number of systems and services that are possible and the institutions and policies that are needed to catalyze their growth.

#### Importance of Government Role

Before examining these problems in greater detail however, it is instructive to examine a few aspects of the current role of governments





as users and operators of computer systems. In this connection, one of the most significant factors that emerges is the enormous size of the government expenditures on computer services both in absolute terms and relative to the expenditures by other elements of the community.

In Canada, for example, the total expenditures on computer services during 1970 have been estimated as \$800 million of which the government share including universities, was \$183 million or about 24%. Of the government portion, the Federal Government accounted for \$84 million, the provinces \$63 million and universities and municipalities combined about \$35 million. Of particular significance in the case of the federal government, is the rate of increase which has been averaging 26% per year for some years now and which, if maintained, will cause the federal expenditures to exceed \$200 million per year by 1975.

Unfortunately, I do not have corresponding figures for other countries, but in the case of the United States, it has been estimated that the federal government expenditures for computers and services in 1970 were \$2200 million or 18% of the total estimated national figure of \$12,000 million. If state and local government and classified military expenditures were included, I would expect that the percentages would far exceed the Canadian figures.

Similarly, for the United Kingdom, the 1970 expenditures on services have been estimated as \$112 million of which the public sector accounted for \$28.8 million or about 25%. Further, according to a recent



British Government Report,\* the expenditures on Computer hardware in the UK Government have increased at an average rate of 30% per annum since 1964 and are predicted to reach a level of £250 million (\$612 million) by 1980 as compared with the current investment of about £ 49 million (\$110 million). This is a somewhat greater rate of growth than most authorities predict for the national average.

If the Canadian, UK and USA figures can be accepted as being typical of the trends in other technologically advanced countries, then it would seem reasonable to conclude that Government data processing expenditures currently represent about 25% of the total world figures. If this is the case, then governments are by a wide margin the largest users of EDP and consequently are bound to be the dominant influence in determining the rate and direction of future developments.

This fact takes on particular significance for computer communications when considered in the context of the rapid growth of remote data processing systems and computer networks. Thus in the case of the Canadian Federal Government, communication line costs for computer linkages have shown an annual growth of over 50% for the period 1967-71 with a 1970 rate of 63% and a forecast growth of 170% per year for the next 5 years. Even at the more conservative 63% rate, by 1980, the costs of communications could easily become the largest single item in the federal government computing budget. Indeed, there are good reasons for expecting that the trend will continue and even accelerate, for many authorities believe that even before 1980, the bulk of the world's computer power will be accessible over communications lines.

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\* "Computers in Central Government Ten Years Ahead", London, Her Majesty's stationery Office, 1971.



Obviously, with such enormous government expenditures for internal data processing, the selection of an appropriate organizational structure is of critical importance and involves many difficult policy questions.

#### Centralization of Computer and Communications Responsibility

One obvious question concerns the relationship between government communications and government computing. If, as I have indicated, the two are becoming married or interconnected, then a strong case can be made for creating a single central government body to plan and co-ordinate the development of integrated government systems. Proponents of this approach claim that only a dedicated computer/communications planning group with adequate resources can properly understand the synergy of a combined system and achieve an optimum design. Far too often, when communications and computer planning are separated the performance of the resultant system falls far below the designers' expectations at a cost that is unnecessarily high. The telecommunication facilities involved for example will be "voice" services that have been modified for data transmission and the computers are likely to be a variety originally designed for stand alone operation but modified to interface with the communications facilities.

On the other hand though, it should be noted that the merging of computer and communications in the shared environment of the computer utility does not imply a total loss of the individual identities of the two partners. As in any marriage the partners, while sharing many common interests, remain individuals that are different in kind. In the field of





communications for example the common area of data communications must be balanced against the requirements of voice, video and facsimile users whose equally pressing demands may bear little relationship to those of the data processors. Likewise, data processing, despite its growing dependency upon communications, is at heart a provider of tens of thousands of specialized application services that demand a concern with the "content" of the message that is drastically opposed to the traditional indifference to content that is the hallmark of the communications carrier.

#### Data Processing Organizational Approaches

These differences are also highlighted in the different approaches to the provision of data processing and communications services in most governments. Thus, in general, the provision of telecommunication services for all government departments is centralized in a single bureau and this centralization is independent of whether or not public telecommunications are provided by private regulated monopolies or by government carriers. In the data processing field however, there is no such general dedication to the principal of centralization and one finds a wide spectrum of different approaches. One useful categorization scheme for example includes the following five policies:

- 1) complete departmental autonomy
- 2) total centralization
- 3) consolidation by program
- 4) consolidation by function
- 5) external service bureau.



### Departmental Autonomy vs Centralization

The first option implies total independence for all government departments and agencies in the planning and provision of their computer services including analysis and programming. Such services could be obtained from in-house equipment or from the private sector depending upon the department's own evaluation of the best approach and subject only to the same budgetary constraints that apply to other departmental activities.

The claimed advantages of such an approach emphasize the close lines of communication between the users and providers of data processing services and the resultant flexibility and quick response capabilities that are so important in matching capabilities and needs in the dynamic environment of modern computer technology. On the negative side however, it is clear that this approach flies in the face of some powerful facts of life. As was mentioned earlier, the concept of multi user sharing of a central data processing complex is rapidly winning acceptance as the wave of the future. Such complexes especially when they are integrated into networks and combined with mini computers on the users' premises are not only more cost effective than stand alone computers, but they offer a range of services that a single department no matter how wealthy, would find it difficult to afford. Increasing economies flow from networks that incorporate larger machines and data bases, sophisticated scheduling and communications control facilities, and in the future, load sharing designed to take advantage of temporal differences in the peak load demands of geographically distributed users. The planning and operation of such networks however



requires centralized management and consequently is completely incompatible with a policy of total departmental autonomy.

Centralization is also the path taken by private industry over the last few years and today most companies with multiple divisions exercise strong central direction of EDP even when quasi independent local data processing centers are retained. Likewise, many governments are moving in the direction of centralization.

In the United States, for example, an Act of Congress in 1965 established a central Federal Government responsibility for planning, co-ordination and control of EDP as well as for procurement of equipment. Similarly, in the United Kingdom, a central group located in the Civil Service Department is responsible for government wide planning, co-ordination, and control of computer growth in the Civil Service including the use of both government and private service bureaux. In addition, the Stationery Office is responsible for all government procurement of computers.

If the centralization road is followed to its logical conclusion, we end up with the second in our list of options: i.e. a policy of Total Centralization. Under this policy a single government body, perhaps reporting to its own Minister, would be established to provide all government computing services as well as planning for future growth and procuring the necessary equipment.

In addition to the previously mentioned general advantages of efficiency and scope of service, this approach ensures that government EDP procurement and expansion policies can be used to support overall



national policies with respect to computers and computer services - an extremely important and highly sensitive function in the light of my previous remarks concerning the size of the government computing sector. Other important advantages include: effective utilization of scarce senior EDP talent by reducing the number of data centers and increasing their size, permitting EDP users to concentrate on applications rather than hardware or programming problems, ensuring that all departments receive the EDP services that they need regardless of the sizes of their individual budgets and providing a convenient mechanism for sharing programs and data bases among departments.

Even granting the need for some centralization, however, it is claimed by the opponents of total centralization that:

- 1) Many departmental programs are unique and may be extremely difficult to handle effectively using systems designed for general purpose use. Indeed some EDP facilities, such as those needed to provide MIS may still have to be retained departmentally.
- 2) The satisfaction of individual departmental needs will demand very careful management on the part of the EDP "centre" and close co-ordination between users. Such co-ordination is very difficult to obtain in the face of powerful departments with urgent requirements whose priorities must always be considered by the central manager in the context of overall system needs.
- 3) Experience with many large organizations including





government bureaucracies indicates that they are often slow to respond to changing needs and insensitive to the special requirements of particular users.

- 4) The organization of a data processing network designed to service a wide spectrum of different users presents a number of difficult problems of both a technical and management nature. On the management side, there is the question of proper representation and handling of user complaints. Committees of senior officials are a possibility, but in most governments such officials are so busy that there is a danger that representation would be delegated to departmental EDP managers or systems staff with a consequent loss of authority, or danger of conflict of interest. On the technical side, there are also many unresolved problems such as software portability, selection of user languages, standardization of data transaction codes, rates and interfaces and the handling of very large data bases in an environment containing many geographically distributed users.

#### Other Approaches to Centralization

In addition to the two extremes of total departmental autonomy and total centralization, there exist many other in between approaches. For example a government's computer systems could be consolidated into a number of specialized centers dedicated to serving departments and



agencies with common programs or activities. On the one hand, there might be people oriented departments like labor, education, welfare and immigration and on the other hand, groups involved in scientific research like, to use a Canadian example, the Defence Research Board, the National Research Council and the Department of Communications.

Although certain economies with respect to personnel and equipment could be realized by this approach, a more attractive concept in my opinion would involve consolidation by application or function. Under this plan, each center would provide government-wide service in some particular application like medical or legal information retrieval, text editing, interactive scientific computing, invoicing, personnel records and so forth.

By concentrating scarce professional talent in what amounts to centers of excellence in particular disciplines, this approach offers many attractive economic and administrative advantages. In addition however, significant advantages of a technical nature are often claimed by proponents of the concept. Thus one of the limitations of general purpose time shared systems is the rather limited number of simultaneous users that the current state of the art of time-sharing permits a single general purpose computer to serve - about two hundred in even the largest systems. In special purpose, or limited multiple purpose systems however, the problems are less serious and many more simultaneous customers can be handled. Consequently, a special purpose system is likely to operate much more efficiently and be able to serve many more customers at lower cost than a general purpose one.



In defense of the total centralization concept, it should be pointed out however, that there is no reason why a general purpose central processing complex needs to be based upon computers in which each machine runs all types of programs. A complex employing many different computers with particular machines or groups of interconnected machines dedicated to special applications would seem to make much more sense.

In fact, many computer architects believe that even the concept of discrete central processors will disappear as processing complexes optimized for computer utility operation develop. Such complexes might for example take the form of ultra parallel networks made up of interconnected arrays of mini computers. With progress in read only memories and LSI it may soon be possible to build mini computers which can handle directly many functions which are today performed by software. Machines which can handle FORTRAN or APL statements directly without any need for compilers are, for example, possible today and their incorporation in an array processor offers some attractive possibilities to the systems architect.

Speaking more generally, we can have systems with distributed processing and/or data bases, centralized systems, master-slave systems, specialized multi and general purpose networks and so on. Each of these different possible structural forms exhibit unique operational, economic and technical characteristics and has important implications for the communications sub systems, memories, processors, etc. from which the networks are constructed.





Needless to say, they also present government policy makers and planners with many difficult questions.

#### Use of External Service Bureaux

The role, if any, to be played by non-government service bureaux in meeting government computing needs is another important question faced by most governments. Thus, those who favor the use of private service bureaux emphasize such advantages as:

- a) Reduced Capital Equipment and Facility Investment, since the only equipment located on government premises would be the communications terminal equipment required for connection to the utility computers and even this equipment in many cases would be owned by the utility company.
- b) Reduced Maintenance and Operating Costs, since these would be borne by the utility and spread across both government and non government users.
- c) Flexibility, This is manifested in many ways. For example, as new and more powerful computing systems come on the market, the government user is free to subscribe to those service bureaux that offer them without being bound by amortization considerations to an obsolescent in-house system. The variety of services available from commercial service bureaux is also likely to be greater than those which are economically feasible in an in-house installation.



In this connection, there is also likely to be strong competition among commercial organizations with favourable consequences for the government bargaining position.

- d) Economic Stimulus. The previously mentioned magnitude of the government requirements for computing services means that government purchasing policies can have a major impact upon the way in which the private service bureau sector develops. Heavy government purchases can have an obvious stimulating effect and provide the necessary pump priming action for the rapid growth of a viable public service industry.

On the other side of the argument, those who oppose heavy dependence by the government upon the private sector point out:

- a) Concentrating responsibility for such a vital element of the national life as computer power in the private sector could make the nation dependent upon organizations whose goals might be at variance with the national interest.
- b) Although government purchasing power could in theory encourage diversity of supply and competition, if true economies of scale exist in the computer utility this would be at the expense of efficiency. Consequently, the



more likely result would be government dependence upon giant monopolies or oligopies, very often foreign owned, whose powers would rival those of many national governments.

- c) Experience with very large scale contract services in many countries is not encouraging as witness the term "Military-Industrial Complex" and the assorted charges of overruns, and extravagance in military procurement programs.
- d) The arguments concerning lower costs are questionable since private utilities would have to recover enough money from their rental fees to cover profits as well as capital investment in equipment and the costs of maintenance and there is no obvious reason why these charges over the long run should be less than the cost of direct government operation.
- e) The proper exercise of government responsibility to determine overall national policy and to ensure that public needs are satisfied demands hands-on involvement by the government in the operation of at least some computer utilities.

#### The Broader Policy Issues

Now I would like to move beyond the important but limited



set of questions involved in the in-house government use of computer communications and briefly consider some of the broader public policy issues with which governments must deal. In this connection, as some of you I know are aware, the Canadian Government is currently in the final stages of an intensive but broadly based series of investigations that are intended to provide the basis for future Canadian policy in the fields of telecommunications and computers. Although many of the details of the situations with which Canadians must deal are, of course, peculiar to the Canadian situation, I feel that most of the basic policy issues are sufficiently universal to be of interest in almost any country. Consequently, I thought it might be useful to introduce the broader policy issues by briefly reviewing the main features of the Canadian work.

The first of the Canadian activities was called the "Telecommission" and it was announced in the fall of 1969 and completed in the spring of this year. This was an exhaustive fact finding review of the entire field of communications and remote data processing in Canada and involved active participation by some fifty project teams made up of representatives from every segment of Canadian society. These teams in turn covered the entire field of telecommunications from telegraphs to satellites and computer utilities and from basic legal studies like the constitutional and legal basis for the regulation of telecommunications to the "Role of Communications in the Canadian Assistance Program to Developing Countries".





One way in which active public participation in the work of the Telecommission was encouraged, was through a number of major national conferences which addressed major social problems. There were six of these as follows:

Telecommunications and Participation - held at the University of Montreal.

Access to Information - Carleton University, Ottawa, Ontario.

Telecommunications and the Arts - York University - Toronto, Ontario.

The Wired City - University of Ottawa, Ottawa, Ontario.

Computers: Privacy and Freedom of Information - Queen's University,  
Kingston, Ontario.

Communications and the North - Yellowknife, North West Territories.

So many matters were covered in these seminars that it is difficult to summarize all of the conclusions but there was one dominant theme that underlay nearly all the discussions. This was that the "right to communicate" should be regarded as a basic human right. In the impending age of total communications, the rights of assembly and free speech may no longer suffice. In order that these rights may be given meaning in the real world, an absolute guarantee of free speech within the channels of the wired community may be essential and, coupled with this, there may very well be a requirement that access to these channels be made free to all citizens.

The Telecommission studies have also made it clear that investment in information networks, provided it is properly channeled, can enormously magnify the economic and intellectual capabilities of a society, and thus produce a major pay-off in the form of higher productivity and a



better life for everyone. This is a cumulative process which leads eventually, in a gigantic quantum jump, to the previously mentioned new order of human existence to which the term "post industrial society" is being increasingly applied. Consequently many of us believe that unless Canada is content to sit back and stagnate in a social and economic backwater while other advanced nations enjoy the fruits of human maturity, it must commit the resources that will be needed to create socially desirable national systems.

The search for policies and measures that will ensure the development of such systems and, at the same time, minimize the possibility of their abuse is therefore regarded as a matter of urgent national priority and it was for this reason that the Minister of Communications, last December, announced the formation of a major national effort to develop concrete plans for an Integrated Network of Canadian Computer Utilities designed to bring the benefits of a computer power to all Canadians wherever they may live.

Called the Canadian Computer/Communications Task Force, this effort is building upon the work of the Telecommission studies. But where the Telecommission was principally a fact finding exercise, the current Task Force is charged with producing definite recommendations and firm plans -- technical, financial and institutional that can form the basis for implementing legislation. These plans will also contain a careful cost/benefit analysis of the various alternatives, so that the Canadian people will have a clear picture of the pay-off that can be expected from the investment that



they may be asked to make. They will be presented to Cabinet next month and the final public report will be issued in the spring of next year.

Some of the parameters of that analysis are already apparent. For example, with the limited resources at Canada's disposal, a coordinated national program from which no available sources of Canadian capital or expertise are excluded, seems mandatory. Likewise, the creation of a national system capable of serving all elements of Canadian society appears economically and politically impossible without a concerted, broad based effort focussed upon the achievement of well defined national objectives. The Government directive which created the Task Force accordingly listed the following basic objectives:

- Achieving the most rapid expansion of services and systems that is possible without unduly disturbing our ability to meet other urgent social priorities.
- Ensuring that the national systems serve public rather than narrow private interests.
- Ensuring the widest possible range of services to all social and regional groups in every part of Canada.
- Ensuring Canadian control and ownership.
- Ensuring adequate protection for privacy, right of access and freedom of speech in all elements of the national system.
- And finally, ensuring that the overall system design is flexible enough in concept and implementation to minimize problems of obsolescence and permit the rapid incorporation of improvements resulting from technological change.





One important subject with which the Task Force is currently wrestling is I know of concern to every government represented here today. This is the problem of data communications and the many different institutional arrangements that might be realized to augment and improve these services. The need for such improvements was strongly emphasized by many of the users in their responses to the Telecommission Inquiry. Suggestions here included: entirely different tariff arrangements in which time and distance would be replaced by distance independent charges for delivery within some guaranteed minimum time, say one second, of a quantity of data, called a packet, or transaction, and which might contain between 10 and 1,000 characters. Other issues raised concerned the possible relaxation of foreign attachment restrictions, the inter-connection of the two main carrier networks and greater freedom for users to perform third-party multiplexing and data concentration. Recommendations concerning institutional arrangements were heavily in favour of a separate dedicated digital network and there was also strong support for heavy Federal Government participation in the ownership and management of such a network. Some also argued in favour of a wide band network that would include CATV as well as digital services.

Moving away from the question of data transmission, the Telecommission reports also presented the Task Force with a comprehensive set of general policy options which for convenience have been consolidated into the following eight major groups:



- unrestricted competition;
- constrained competition;
- a privately owned total computer utility;
- a government owned total computer utility;
- a total computer utility owned by several  
common carriers;
- a single telecommunications/computer utility  
carrier;
- an integrated network of telecommunications/  
computer utility carriers;  
and
- an integrated network of computer utilities.

The first two policy groups represent options which, with only slight alterations in law and regulatory practice, could be used to describe the current Canadian situation.

In concrete terms, unrestricted competition would mean that the computer utility industry would operate in all its aspects in a normal competitive environment, subject only to the same general business laws that apply to other enterprises in a basically "free" enterprise oriented society. More specifically, anybody, the carriers, Crown Corporations, or some independent entrepreneur would be able to offer both data-processing and certain communication services to the public.

Moving slightly away from the "laissez-faire" option, one could think of applying some of the constraints that have been requested by



various special interest groups. Here there are two main sets of constraints, both of which would please some segments of the industry and annoy others.

For example, you could place a wall of separation between computers and communications, and forbid the telecommunications carriers to enter the data-processing business and, at the same time, prevent computer organizations from performing any communications functions. Alternatively, you might maintain the leash on the common carriers but permit data-processing organizations to provide certain communication services. A key factor behind both of these options is the absence of major government initiative or intervention in the industry. Thus the general principle belongs to classical market-place economics and adopts the view that the best way to assure a proper distribution of resources is through the interaction of free and more or less equal economic units in a buying/selling situation.

In all candor, I must say that this view might have had a greater credibility in some other time and place but it seems to me that such a doctrine is totally incompatible with the realities of life in the last quarter of the twentieth century.

There are obvious and important trade-offs between private benefit and social cost and since the shape of things to come will be determined to a large extent by actions that are being taken and plans that are being made today, the swift resolution of these trade-offs is vital to our future society. Consequently, I personally believe that it would be an abdication of responsibility for any national government to leave the



critical computer/communications field to the uncertain fortunes of the market place - or what is more likely to the priorities of the multinational corporation.

The next three sets of options involve policies which would have as their objective putting communications functions and data-processing functions together in one or more corporate entities which we have called total computer utilities. In each case, they would be owned or regulated by central authorities. These companies would be built around existing or new common carriers. This kind of proposal, based as it is on the notion of a regulated utility with a defined territory gives the promise of excluding foreign domination to as great an extent at least as it has been excluded from telecommunications. But the fact that these companies would have an exclusive access not only to telecommunications services but to all forms of data-processing services does pose some virtually insurmountable problems when it comes to assuring the innovation and diversification which can be produced in a free market.

A possible answer to this kind of objection is to be found in the sixth major option group. In this system of policies, a distinction is made between service applications of computer power and something called raw computer power. In this group of options a firm, owned either by private shareholders or by the state, or both, would set up a Telecommunications/Computer Utility Carrier which would deploy systems that would supply not only data-transmission capacity but also processing power. However, this computing power would be restricted to the level of executive programs and





certain compilers. Access to the system at more sophisticated levels of programming would be made available to the general public through unregulated service retail bureaux. The intent of this policy option is to hive off the creative part of the service industry into an unregulated sector while making the capital intensive part a shared-resource regulated utility.

In the last two policy option groups a new form of government involvement is suggested. This is called, for the sake of convenience, a Canadian Computer/Communications Agency. This body which is seen as a sort of integrating body for plans, standards, research and development would bring together representatives of federal and provincial governments, private industries, professional groups and universities in a way that could provide assurance of both private benefit and a due concern for the public good.

The first of the two policies that are compatible with the agency concept contains the following basic elements:

- The industry would be divided into a "Telecommunications/Computer UTILITY Carrier" and a "service" sector.
- Both the telecommunications carriers and nay other organizations that so desired would be permitted to supply raw computer power but only the offerings of the telecommunications carriers would be regulated.
- The telecommunications carriers would be forbidden as carriers from participating directly in the service sector.



- All telecommunications transmission facilities, wide-band cable and microwave distribution systems, as well as conventional record and voice, would become the sole monopoly of the existing regulated telecommunications carriers.
- An Agency would be established to integrate the operations of the different carriers, establish common standards, provide R&D and accomplish overall system planning for the total national network.

Finally, in the last policy option, which I have chose to call the "integrated network of computer utilities" or the "Trans-Canada Computer Network", a national data communications network would be created with heavy Federal Government participation or perhaps partial ownership. Depending upon the selected institutional arrangements, the carriers would participate either totally or partially in the operation of this communication network but would be barred from providing public data-processing services, including both raw computer power and application services -- except perhaps through totally arms length subsidiaries.

The data network would link together every publicly accessible remote data bank and information processing organization in the country so that together they would comprise the Trans-Canada Computer Network. This network would operate under the overall guidance and planning authority of the proposed Canadian Computer/Communications Agency (C.C.C.A.) which would help ensure the integrated operation of the many different independent organizations and functional elements that would make up the network.



In this connection, it should be emphasized that the term "Trans-Canada Computer Network" does not necessarily imply the existence of any formal structure by this name. Indeed the network would consist of hundreds or even thousands of completely independent organizations representing the full spectrum of institutional structures from government and crown corporations to independent data-processing companies. Their only common denominator would be the fact that they would all be interconnected by the national data communications network and follow the general standards and guidelines established by the computer/communications agency. The services of each however would be equitably and conveniently accessible from any part of Canada.

Other features of the policy include:

- Freedom for users to utilize either carrier supplied terminal equipment or their own equipment, provided in either case it is properly certified by the appropriate national standards body, possibly the CCCA.
- The national data communications network and its component elements would be required to meet all reasonable demands for service; to follow the overall plans established by the CCCA; to secure approval from the appropriate federal regulatory bodies for tariffs, capital budget, rate of return, corporate structure, and general operating practices, procedures and regulations; and to purchase all major equipment and supplies by open competitive bidding.





- And finally, the data-processing industry would be unregulated except with respect to basic standards, privacy, file protection, liability and so on.

### In Conclusion

And now in conclusion, ladies and gentlemen, after dwelling so long on the Canadian policy options, I would like to return again to the International Scene and issue a few words of warning.

The post-industrial society is not the exclusive property of any one nation or group of nations but rather the promise of an infinitely finer and freer life for all mankind than any to which human beings have ever before dared aspire. In the world that can be, the concepts of tribe, of nation or of empire have no more relevance for us than the feudal fiefs of the middle ages. The post-industrial society is one in which it is the individual human being who counts, not nationality. Indeed the ultimate promise of this society is the elimination of nationality and the joining together of all human beings in the Federation of Man. Consequently, as each of us wrestles in his own country with the challenge of the computer utility let us all keep in mind the salient fact of the nuclear age that no man or nation can anymore be an island unto himself. We are all passengers on the "space ship Earth" and the future survival of that ship depends upon the co-operative efforts of all mankind.



KEYNOTE ADDRESS

BY A. E. GOTLIEB

DEPUTY MINISTER OF COMMUNICATIONS

ADVANCED COMPUTER-BASED TECHNIQUES

The Opening Session

To The Management Series

Federal Government

Central EDP Training Program

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Le Chantecler, Ste. Adele

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that the advent of computers within a department has not changed the basic substance of management decision-making; and that the successful management of computer applications requires the same combination of management judgment and perspective that is used successfully in other management areas. In this exploration of the relationship between the manager and the computer, I will review some of the myths in data automation. Finally, a discussion of some notable successes will provide a point of departure for what computers may provide in the future.

First, however, let me explore the historical development of the computer as we know it today, thereby developing a broader perspective and more realistic interpretation of the role of computers within an organization.

Machines have been used to count and calculate for over two thousand years. The abacus is known to have been in use in 300 B.C. and is still in use as an aid to rapid calculation. The initial slow pace in the development of computing technology as represented by the abacus and the resulting absence of man/machine problems is unfortunately no longer a fact of modern life.

The next step in the evolutionary development in modern computer equipment followed two separate streams; the first from that of Pascal in 1642 and his adding machine which is the direct forerunner of the modern com-



puter; and the second from that of Jacquard in 1801 and his mechanical loom which led eventually to modern punched card equipment. The first stream passed its most significant milestone when the stored program approach replaced the fixed program approach of mechanical calculators, such as adding machines. The stored program approach follows from the construction of the ENIAC computer at Aberdeen, Maryland in 1943. The choice of the word ENIAC, an acronym for Electrical Numerical Integrator and Calculator, was representative of the new wave of jargon which soon followed. This early generation computer has of course been superseded by succeeding generations of computers and the computer, as such, is now at its own critical crossroads of history.

The final innovative phase of computers, to date, is a direct result of the marriage of computing technology with the much older and well-established technology of communications. This combined technology allows access to a computer from remote input/output devices via a telecommunications link. The wider implications of this ready access to computers is currently the subject of the computer/communications task force established by the Cabinet within the Department of Communications.

The task force is charged with the responsibility for making specific policy recommendations respecting the





development of computer/communications and will submit its report to the Canadian Government early next year.

Let us return to the development of computers and attempt to trace its path from the point of view of the functions performed in an organization.

Initially, the computer was used mainly as a calculating aid in support of research and development; but the rapid growth of computers in business and government dates from their successful use within the United States Census Bureau in 1951. A large management inertia towards the use of computers has been only gradually overcome; an inertia which has had one positive effect in slowing the thrust of the technological imperative of computing within an organization. The efforts involved and the many initial failures have introduced a new note of caution and growing appreciation by the computer profession of the limitations of computer applications to the more general problems faced within an organization. The computer in its increasingly more realistic but enlightened use is coming of age.

A review of this route to maturity must start with the first impact of the computer on scientific and technological advance. It is generally accepted that without computers there would be no nuclear reactors, no commercial satellites, and possibly no jet travel. The second impact follows from, but is associated with, the first in that



the computer provided a means for alleviating the administrative problems which arose from the increased pace of business activity. The current impact of computer applications to management decision-making is reaching the nerve centre or senior management level in many organizations.

This impact can be seen by discussing some principles of management, organization, and computers. Division of labour or specialization is a dominant aspect of all large organizations. Labour within these organizations is divided both vertically and horizontally with the binding force being provided by rules and objectives. In this way an organization becomes a natural hierarchy in both its structure and growth.

The increasing size of hierarchies multiplies the importance of the coordinating function and this includes routing information and controlling the flow of work. Too often, unfortunately, the construction of computer-based information systems have tended to be designed to meet the particular functional requirements of that part of the organization that knows how to use computers. This means that other parts of the organization and other possible applications are not adequately served. The lesson here for senior management is that business information is now a major factor of production and requires the same management attention as do the traditional men, money, machinery, and materials.



Real-time in the sense of computers is not equivalent to real-time in the sense of management decisions. The myth that a real-time computer terminal in every manager's office will produce instantaneous management decisions is both misleading and dangerous.

Let us now cast our net beyond the historical developments in computer technology and the integration of this technology within an organization. Let's look at the human dimensions involved and the implications for management. Clearly, computers have found their way into most aspects of modern life. Since the 1950's, the business executive has been advised by some overly-zealous computer salesmen and computer scientists that the computer would revolutionize management decision-making and revolutionize the top management function. I don't believe that many managers remain intimidated by this myth of data automation. Another myth that computers will replace middle management in the number of decisions to be made at this level is also vanishing from the scene. But this group will have certain adjustments to make. It is clear that middle managers are becoming increasingly important to the extent that they are able to manage computer applications well.

A further argument that senior managers must be trained to understand computers has, at various times, been put





forward as the final answer to determining the role of the computer in the organization. This argument is, of course, a special example of the more general and equally invalid argument that a manager must know "the how" of a technology rather than "the what it can do." Senior managers can learn what they need to know in a day or so of really effective orientation supplemented by selected reading and briefings. RCA, for example, is de-emphasizing computer orientation training for middle and senior managers in favour of training in identification of information required to manage better. The orientation being taken here in developing an understanding of the principles and limitations of computer applications in the management decision-making process is consistent with the realities of modern management.

Let us expand this 'people' dimension of computers and management decision-making. Whether in government or industry, the effective manager must be sensitive to the changing needs and goals of many individuals and groups. It is more true today than ever before that leadership can survive in the long run only if it continues to maintain a dynamic balance between the competing demands for benefits produced by the organization. These demands can arise either from within the organization or from special interest



groups external to the organization.

Clearly, senior management must assume the overall management responsibility for the effectiveness of the computing sector within the Department; and generally, such effectiveness will be achieved only if the same basic pattern of organizing computer operations is followed as for other company operations. Computer applications need to be planned and approved and the performance evaluated on the same basis as all other activities involving increased expenditures and investment.

What, then, is the most effective relationship between senior management and the computer? Management needs to know what computers can do for them; to exploit their potential; but not to understand, as I said earlier, how they work. From this perspective, a computer is basically an opportunity to perform administrative functions efficiently and quickly. The effective use of computing science will increase the administrative potential to use information creatively to identify and develop new operating concepts and program opportunities. I am not suggesting here that the operations research analyst should have a dominant role in defining the problem. Allowing the system to define the problem would involve an abdication of the managerial responsibility. What the manager needs is not an optimal solution to a problem that the analyst can deal with, but rather a



simulation of results that might flow from decisions in his real world. Let me illustrate:

A manager who is being 'eaten alive' by the carrying costs of his inventory is advised by his data-processing experts that he should order items into inventory in optimal lot sizes. Some of you will probably have already been exposed to the 'that nice little square root formula' that tells how to determine the optimum. The exact answer which is quickly determined solves only one facet of the problem, but this is not necessarily the best answer to the manager's problem of 'what to do about the high inventory carrying costs.' The best answer might be: to hold a fire sale, to standardize parts; to change accounting procedures; or to improve inventory management efficiency; all of which are answers beyond the 'square root formula' approach.

The potential of computers is vast and is developing so rapidly that senior management may have some difficulty in distinguishing between the dreamers and the realists, especially when the theoretical possibilities are so enticing that any dash of realism tends to be viewed as obstructionist. So again I say that in this environment it is even more important that the senior manager rely on, and have trust in, the same business judgment that has made him successful in other areas of



responsibilities. An example here is provided by the rapid development of computers as 'thinging machines'. The proposal here is that computers can be programmed to adjust to changes in its environment. Such artificial intelligence would draw inferences, learn from mistakes, and search for parallel situations, just as a manager does. The early successes in artificial intelligence were startling. The resulting bandwagon effect produced an unrealistic level of expectations and many efforts to exploit the concept.

A survey by Hebert Dreyfus of the RAND Corporation showed that no significant progress, beyond mediocre chess playing, stilted language translation, and stereotyped musical composition, had been achieved. The early expectations concerning creative computers can be compared to the first man who, having climbed a tree, claimed he was making progress toward reaching the moon. Dreyfus concluded that computers cannot duplicate such essential aspects of human thought as the intuitive recognition of cues in the environment which are too numerous to develop explicitly, the ability to sort out the essential from the incidental aspects, and a willingness to tolerate some ambiguity in a problem at hand. Yet these attributes are essential to management decision-making.

The many problems which flow from the use of compu-





ters in organization can be traced to inadequately trained computing managers, to lack of communication, and to lack of a professional base of knowledge. The lack of communication between senior management and technical people is a serious problem in the use of computer systems. The problem exposes the lack of an adequate conceptual model common to both management and technical people. This functional need is partially met by such recent innovations as management information systems, program and project reporting systems, and resource management systems, amongst others. This need can be met more completely through the development of a conceptual framework which displays the overall information requirements of the organization. Such a model will provide a common framework to the subsequent design of administrative information systems responsive to the people within the organization. What is required is an understanding both of the organization, its purpose, structure, personnel, and operations, as well as the fundamental principles of systems design.

This orientation takes into account a reality of management decision-making that can be expressed in the phrase "getting there is more than half the fun". Many discussions on computer applications to business problems which do not lead to implementation have served their purpose by increasing the manager's awareness of organiza-



tional problems and opportunities. These results follow from the discipline imposed in defining a problem in a new vocabulary and from a new perspective. For example, an attempt to use Linear Programming to allocate logs to sawmills may end up with a management decision to develop a new price structure for its products.

The project team approach to a specific problem or opportunity in computer applications will almost invariably, through the process of learning more about the problem, restate the objective to be achieved or the criteria to be used.

I indicated very early in my address that computer technology is currently at a crossroads with communications technology and that this intersection is providing the thrust to innovate in the development of computer applications. Until very recently, the computing industry consisted of computing equipment manufacturers, communications common carriers, data processing service bureaus, consultants, software suppliers, computer-leasing firms, and finally, the large group of user organizations. Such distinctions based on the primary functions of organizations, are now more apparent than real since the borderlines between institutions, in terms of the services provided, are becoming blurred or non-existent. Today any two organizations from any of these service areas can, at the same



time, act as equipment suppliers to each other, serve as customers to each other, be in competition with each other, and provide a consulting service to each other.

If we look at the types of data-processing now available, we can observe a strong trend toward specialized applications, such as scientific computation, information retrieval, management information systems, and so on. It appears that there has been a welcome move away from the early emphasis on computing hardware developments and that attention has now shifted to the recognition and satisfaction of actual user needs. In the case of interactive systems, as exemplified by air line reservations, stock quotations, information retrieval, and so on, the user-orientation of the terminal is the main feature of the system. This user-orientation requires that the hardware system be easy to handle, that it allow errors, and that it provide for different human operating speeds in the basic systems design.

In closing I would like to point to another direction in which this age of computers appears to be moving. I refer to the formation of specialized computer/communications networks, for example, university computation networks, networks for bibliographic reference between libraries, and financial networks within banks or eventually,





one may hope, between banks. This trend will further remove from senior management consideration the need to centralize computer facilities and expertise. These networks provide flexibility for the distribution of computing resources and provides management with the opportunity to adjust the structure of the organization to new needs.

To restate a basic premise which I have tried to maintain throughout this address: computer/communications is only a means to developing information and that information is a primary resource which must be managed, controlled and used with the same skill as the other resources of an organization, men, money, material and machinery.



Notes for a speech by

HON. ROBERT STANBURY, P.C., M.P.

(York-Scarborough)

MINISTER OF COMMUNICATIONS

at the

Annual Meeting

of the

Nova Scotia Weekly Newspaper Association

Friday, October 22, 1971

Hotel Nova Scotian

Halifax



Having been invited here when I had different responsibilities in the government of Canada, perhaps I come tonight under false pretences. You were no doubt interested in knowing how Information Canada plans to bend the minds of the people.

I feel a bit guilty not taking this opportunity to explain that it is no more sinister than Nova Scotia's information office (or is it communications?); that it is not a dept of information, nor a public relations agency, nor the spokesman for the federal government, that it brings together federal government publishing, bookselling and exhibition activities and seeks ways of making departmental information programs more economical and effective; that it is promoting professionalism among information officers and an outward-looking sensitivity to public needs among all civil servants; that it is enlarging channels of citizen inquiry and expression about federal matters; that it is stimulating Canadians' interest and understanding of our federal system, our country and our fellow citizens.

I should really have talked to you of such matters, because I think it is important that you be aware of them, but I have decided to leave them to my successor as minister responsible for Information Canada, Martin O'Connell. I am sure he would be glad to accept an invitation from you, and we can only hope that he is not given a different portfolio before he gets here.



When I was concerned with Information Canada and Citizenship, I was more interested in content than in the container or the carrier. Now I am in a department where the availability, effectiveness and impact of the medium are the main concerns. So I will be raising issues in a somewhat different way than you might have expected when you asked me to come. However, I think the policies and issues that preoccupy a Minister of Communications are relevant to your activities as people who own and manage information media.

Nova Scotia is Canada's eastern communications gateway, and has perhaps our country's most important concentration of telecommunications facilities. The two main Canadian telecommunications enterprises -- Bell Canada (through Maritime Telephone and Telegraph) and CN/CP Telecommunications -- are both active in this province. So is the Canadian Overseas Telecommunications Corporation with its satellite earth stations at Mill Village, the new Bermuda cable opened this year and the new trans-atlantic cable with 1,800 voice-circuits which is due to be completed to Sheet Harbour in 1974. And so finally is Telesat Canada, which is installing a regional earth station at Harriet's Field near Halifax and which will also be transmitting signals via satellite from the CANTAT-2 trans-atlantic cable. In no other province have these four telecommunications entities such a significant presence.





They reflect the public, private and mixed enterprises which characterize our country and offer Canadians a wide variety of channels of communication. They don't produce content; they just carry it. If the media are the messengers, they are the bicycles.

Ownership and control of the information media is more crucial to our society. Historically, the effort to provide Canadians with a diversity of fact and opinion has been supported by a diversity of ownership. Nova Scotia presents an example of almost unrivalled variety and complexity. In no other province do independent, locally-owned newspapers play so important a role. Only one Nova Scotia daily newspaper is group-owned, compared to five out of six in New Brunswick, two out of two in P.E.I. and two out of three in Newfoundland. But, like elsewhere, economic pressures are forcing mergers, and causing the disappearance of traditional news outlets.

Throughout the continent in recent years there have been many victims of this battle between the needs for diversity and for economic efficiency. The latest is The Telegram of Toronto, whose heft and stature as the third-largest paper in English-speaking Canada cannot save it from folding by the end of next week. However, thanks to the initiative of some Tely staffers, a new morning tabloid, The Sun, will rise promptly out of the ashes. And in many parts of Canada, new alternatives are springing up in the form of suburban weeklies, underground papers and community cablecasting groups.



Newspapers come and go, as do all businesses, and there is no immutable reason why any newspaper, however old or large, should live forever. Yet it is plain that what is taking place is more than just the ordinary ebb and flow of market forces. We are losing media but at the same time we are gaining them. In the U.S. mass circulation, general-appeal magazines have been going under, and ours in Canada are in a precarious state. Meanwhile, small, independent and iconoclastic newspapers such as the Youth Estate of Darmouth and the Mysterious East of Fredericton have gained a foothold; FM radio has given us a whole new spectrum of broadcasting, which the CEC plans to exploit through its new Radio Two network; CATV, like raw new wine poured into old bottles, threatens to break apart our traditional television patterns, creating new sources of programming and fragmenting old audiences.

It is hardly news that the media are in a state of profound change. Recognizing that, though, it seems worthwhile to analyze what is happening, why it is happening, and the best directions you might take in the new communications environment.

Here are some guesses at what is happening and why:

In the first place, the public is becoming publics. It is less and less meaningful to talk about the public as a general homogeneous mass. Instead, the public is fragmenting



itself as people become more and more specialized, more particular and more knowledgeable in their tastes. Instead of wanting to know a little about everything, we seem to want to know a great deal about a smaller range of things. This trend is most evident in the magazine field: the most successful new magazines of recent years have appealed to specific publics -- those with a burning interest in cars, boats, sports or even girls.

Secondly, the members of these publics are no longer just content to hear (or see); they want to be heard (or seen). Participation may be an overworked slogan but it is a fact of life for the media. "Action line" columns in newspapers, open-line shows on radio, community programs on CATV and camera-conscious street demonstrations are all evidence of the determination, and ability, of the new publics to say and show what they think as well as to listen to what others think.

Furthermore, as public tastes are becoming more specialized so is technology making more specialized (that is, more varied) the means by which these publics can be reached. Each year, it becomes cheaper and easier to publish a newspaper, to start a radio station, and (thanks to CATV and VTR) to originate and distribute television programs. While large, familiar forms of publishing and movie-making may be disappearing for economic reasons, easier access to tools of production on a local or regional base is creating





new forms through which people communicate with one another. No one is quite sure what the effects of this will be on the conventional structure of our society, or on Canadian unity as a whole, but we can see these new forms appearing and must find ways to respond to them.

In our response so far, it is often said, we have spent too much on hardware and too little on software. The evidence in fact is quite the opposite. This year, through CATV, ETV, VTR and regular broadcasting stations, Canadians will be producing more television programming than in any other year in our history; this year a record 94 films were entered in competition for the Canadian Film Awards, compared to 66 last year.

Technology is going to continue to make it easier to distribute messages to the public, in an ever-widening variety of ways. Broadcasters, who are still trying to come to terms with CATV, within the next five years will have to accommodate themselves to videocassettes and other visual devices which could fragment the public still further and at the same time further widen the variety of choice for the individual.

All these developments lead irresistibly toward a fragmentation of the public into a series of publics with individualized tastes and reached by individualized media -- "a city of a thousand ghettos" according to Laval sociologist Jacques de Guise, quoted in the Telecommission report, Instant World, published by my department earlier this year. From your point of view, it means more and more competition.



At the same time, the economics of the conventional mass media seem to be moving irresistibly in the opposite direction -- toward increasing need for size and for economies of scale. The Senate Committee on the Mass Media calculated that 77% of Canadian dailies, in terms of circulation, are group-owned. The only significant exception to this national trend was Nova Scotia where only 9% of daily newspaper readers were served by one group-owned paper. As far as daily newspapers are concerned, there is disheartening evidence that group ownership is fast becoming almost synonymous with survival.

If this quick and summary overview of the forces of change operating upon the mass media is reasonably correct, the question becomes how best to take advantage of the new opportunities, and how to ride out -- or on -- the winds of change. The heart of the issue seems to be: how to achieve a realignment in the balance between cooperation and competition that retains, and emphasizes, the best of both worlds.

This concept of balancing cooperation and competition is hardly new in the Atlantic provinces. Each of Nova Scotia, New Brunswick and Prince Edward Island is intensely proud of its own individual identity, yet I understand moves are underway toward greater cooperation and rationalization among them, so that the whole becomes stronger than the sum of its parts. In the field of telecommunications, my department is



ready to provide all the assistance it can to the proposals for a series of joint Atlantic provinces public data banks and for a cooperative data network linking the governments of the three provinces.

So far as weekly newspapers are concerned, one suggestion for cooperative effort made by the Davey committee may deserve serious attention. This was the proposal that the Canadian Weekly Newspapers Association should organize itself to approach national advertisers on a cooperative basis so that national advertisers could become better aware of the possibility of reaching publics across the country with intense local interests and involvement. I understand that the Association is now considering ways of undertaking such a program and I commend its initiative.

Another approach to the best of both worlds of cooperation and competition may be found through recognition that the competition desired is in terms of content, not container; in messages, not medium. The public wants, and needs, variety in the information upon which individuals make decisions, social, cultural, political, business or personal. The means by which this information is provided, and therefore the institutional structure and ownership of those means, may be of less importance. What is important about the medium, the container, the means of distribution is that it should be as efficient and as cheap as possible. And efficiency and low cost are very often -- though by no means always -- a function of size.

Fragmented ownership does not automatically mean



variety of content. It would be hard to prove for instance, that small independent radio or TV stations are necessarily more independent (or varied) in their content than the member stations of a group. The very economic precariousness of small independent stations often places them under unique constraints.

In some sectors of communications, and this patently does not apply to newspapers, one approach is that of the utility -- single ownership of distribution facilities, operated as a utility and therefore open to use by many or indeed perhaps by all who wish to do so. In this concept as in others, the hardware, the distribution facility is separated from the software, the programs. This approach has been extended in varying degree to the field of cable television in several areas of this continent. One aspect of this utility concept, of great importance in areas where cities are cabled and large rural populations are not (and thus suffer even greater disparity of information), is that higher gross revenues available in large urban centers can be applied, in part, to extending service to sparsely populated regions.

This principle has been adopted to a degree in Alberta where CATV signals eventually will be transmitted among up to ten of the large centers by the Alberta Government Telephones. Through a rate equalization process, already common practice in the telephone industry, the CATV subscribers in the smaller or more distant cities will enjoy rates not





too different from those in the larger and more accessible centers. In this case what appears to be developing is a mixture of the utility concept and the broadcasting concept to deal with these problems. There are benefits resulting from common ownership throughout the province and also from consolidation with telecommunication facilities used for other purposes.

Of course, I fully realize that there are limits to the advantages of common ownership, even in the hardware field. How much should there be in the public interest?

Clearly there are no simple answers, and still less are there universal ones. Proud independence will work best in one instance; group or common ownership in another. The forms are of great importance but so is the content, and today's content -- articles, programs, films -- is being consumed by a public that is increasingly discriminating, demanding, determined to participate.

Weekly newspapers, enjoying among all media the greatest intimacy with those they serve, have a particular opportunity and responsibility in the participatory society. Yours are the original individualized, personalized media. You are perhaps best equipped of all communicators to adjust to the new information environment. You may be able to use the new technology, for instance cable, as new carriers of your content. You are vitally important to our citizens'



sense of community. Its preservation and development will depend in large measure on your ingenuity and initiative. I am sure you can meet that challenge.



Notes for a speech by

HON. ROBERT STANBURY, P.C., M.P.

(York-Scarborough)

MINISTER OF COMMUNICATIONS

at the

Canadian Data Processing Conference

of the

Canadian National Business Show

Montreal, 16 November, 1971, 10 a.m.







In considering the role that electronic data processing will play in the future development of the Canadian economy, it would be an advantage to have some expertise in economics or computer science, or better still, both. I cannot claim such expertise, as some of you no doubt can, but I am encouraged by the knowledge that there can't be double-threat men -- economist-computer experts -- in the audience.

The federal Department of Communications became aware during its comprehensive Telecommission studies that the area of computer/communications warranted special consideration because of its importance and its complexity. As a result, the Canadian Computer/Communications Task Force was established. Its work is rapidly reaching fruition and its recommendations will, I hope, form the basis for government policy in this field for some years to come. From the federal government's point of view, therefore, the importance of electronic data processing has been recognized.

Any consideration of the role that EDP will play in the future of Canadian economic development must begin, it seems to me, with a look at current economic realities. And these are by no means easy to pin down in the present state of flux of world trade. However, we know that Canada is a very large country with a relatively small population. It has one of the highest standards of living in the world, based primarily on abundant natural resources, but becoming



increasingly reliant on manufacturing and service industries for the creation of wealth and employment opportunities. Our relatively small population implies a small domestic market. Not so small in some ways, because the discretionary income available to Canadians makes our market for some goods and services as large as that for countries having many times the Canadian population. However, in comparison with most other industrialized western nations, our domestic market is small, which in turn implies diseconomies of scale. Furthermore, the emergence, expansion, and consolidation of trading blocs, with Canada on the outside, is cause for some concern if we are to look upon the rest of the world as the market which would provide the necessary economies of scale for our industries. These developments, combined with the recent advent of the so-called "Nixonomics" in the United States, place in question the prospects for the expansion of world trade which would be in the best interests of Canada. On the surface, then, it is difficult to regard the present climate with unalloyed optimism. Nevertheless, I do not believe that the expansion in world trade of the last quarter-century will be lightly overthrown, reversing the benefits which virtually all countries have gained from it. Perhaps the situation may be best summarized by saying that the long term trends give cause for guarded optimism.



Within this context of current economic realities, electronic data processing's importance to the economy lies in two main directions: firstly, as an industry in its own right; secondly, through its use by most other industries and institutions in the economy.

In the first instance, it might be useful to consider the industry as having four major segments: (i) a hardware manufacturing and supply segment (many of the products of which can be seen at this show); (ii) something which might be called a "direct service" segment, consisting of computer service bureaus, software houses and the like; (iii) a communications segment, which provides data transmission facilities, products and services, and which is becoming a key segment in our efforts to make more effective use of EDP; and (iv) a supply segment providing forms, magnetic tape, data cards, and even such items as raised flooring and standby generating equipment which the EDP revolution has brought into being.

Now, when you consider that this industry, as I have defined it, is estimated to employ some 45,000 Canadians in designing, producing, distributing, and maintaining goods and services related to computer/communications, you will appreciate that this is no small contribution to the economy. Furthermore, many of these jobs are highly-skilled -- just the kind that Canada needs. For this reason, it is no secret



that we would like to see more jobs created in this industry, and towards this end the government has been encouraging certain aspects of this development through the Department of Industry, Trade and Commerce and the Department of Regional Economic Expansion, with some success.

Electronic data processing in its use by other industries and institutions is in some ways far more important than as an industry in its own right. For it is becoming evident that only through the wise application of technology can Canada compete effectively as a nation. I should emphasize wise application because the results of some of the past indiscriminate applications of technology have already come home to roost. I am aware also of the doubts that have been expressed about the real effectiveness of the application of computers to business systems -- some would even term it disenchantment -- but I suggest that there can be no doubt about the long-run outcome. EDP is here to stay; and I might go so far as to suggest that without computer systems the economy might come grindingly to a halt. Imagine, for example, a large, modern airline without a seat reservation system. Or a bank without character recognition equipment. And I hesitate to think of how many more public servants there would be but for the advent of the computer. In virtually every facet of industrial, commercial and institutional life the presence of EDP is a reflection of its necessity and importance.







This distribution of computer power throughout the various sectors of the economy, and geographically across the nation, has promoted and been promoted by a marriage of necessity between computers and communications. We have witnessed in the last few years, at least among the larger users, the transformation of "passive" stand-alone EDP systems into "active" information and control centres. Thus far we have managed to get by, for the most part, through the use of existing telephone network facilities. Unfortunately, the characteristics of data transmission differ markedly from those of voice transmission, which poses a serious problem for future development. Many possible solutions have been put forward, ranging from the Science Council's proposed "national spine" to permitting new entities to provide digital transmission facilities. At least two things are clear: we must encourage the application of new techniques in this as in any other field; at the same time, we must ensure the integrity of existing facilities and provide for the orderly growth of data communications in Canada.

What will be the role of EDP tomorrow? Well, I don't propose to rehearse here and now the visions of Herman Kahn and Alvin Toffler. But I will mention a few probabilities that seem to me almost inevitable:

The problems facing us will tend to become more complex, and that the decisions to be made as a result will



become more difficult. Life is increasing in complexity, and it is unlikely to become less complex. There will be fewer and fewer questions, particularly in industry and government, which will not demand some sort of trade-offs. We will be forced to consider not simply whether the advantages outweigh the disadvantages, but whether the long-term detrimental effects will outweigh the short-term gains. Such problems may have always existed, but only now are we recognising them for what they are.

While the problems will become more complex, demands will increase for their speedier resolution. All segments of society will demand of their leaders and managements that "something be done, and done now". More and better educated people are unlikely to allow problems to go unresolved. It will become more difficult for managements and for governments to sweep problems under the carpet. It will also become more difficult for them to attack problems with the deliberation they deserve.

These demands by society imply that government involvement in the economy is unlikely to diminish and could well increase still further. At the same time, pressures will undoubtedly grow from most segments of society (even the same ones) that the costs of socially-desirable programmes be kept within reasonable bounds. There are obviously limits to the resources that can and should be provided, and that we as a nation can afford.



It is probable that the competitive pressures on our manufactured goods and services will not decline. This implies a continuing examination of our cost structures, not merely in relation to domestic competition but more importantly, from a national standpoint, in relation to the international market-place. It has been said before but bears repeating that the price of a loaf of bread may not be too important in itself, but it will ultimately have an impact on the prices of all other goods and services. Even if your company is not engaged in the export business, the price of its goods or services is just as important in terms of national viability as that of our exporters.

All of this suggests that Canadian businesses and institutions in the coming years are going to need, as never before, critical information in a timely manner and processed in a way that will help us make decisions that will become increasingly more urgent and difficult to make.

The inference is clear: only through the proper use of EDP equipment will we stand any chance of coming to grips with many of the problems that lie ahead. In some situations there will be simply no other way to manipulate the masses of data which we are accumulating with every passing day; in other situations, our tolerances with respect to speed and timing will have become so acute that we will become impatient if we don't get a response on the computer terminals in our offices within a couple of seconds.



No dreamer believes, of course -- even in this company -- that FDP will solve all our problems. History indicates that as soon as we have solved one problem, another can be counted on to arise to take its place. It may even be that in the act of providing solutions we create the genesis of the next problem. That has never deterred man from trying to see clearly the objective ahead, and if we have to retrace our steps from time to time it will add to the certainty that we are going in the right direction.

I have tried, in a very brief fashion, to indicate to you the belief I have in the future of FDP in this country. And if someone were to ask me to respond with a one-word answer to the question of what role electronic data processing will play in the future of Canadian economic development, I would be tempted to answer: crucial.





"COMPUTERS, COMMUNICATIONS AND GOVERNMENT"

Notes for a speech by

HON. ROBERT STANBURY

Minister of Communications

at a dinner meeting of the

CANADIAN INFORMATION PROCESSING SOCIETY

Montreal Chapter

7:30 p.m., Tuesday, January 11, 1972

Sheraton Mount Royal Hotel

Montreal



Last September, shortly after I became Minister of Communications, I had the pleasure of opening the Canadian Computer Show in Toronto. There I reaffirmed my Department's commitment to the rapid development of the computer/communications industry in Canada. Since then I have had opportunities to discuss the myriad challenges of this new field with government officials and industry leaders in Europe and the United States as well as Canada, and during the coming weeks I hope to pursue these discussions with provincial ministers. After these few months of deepening personal involvement in the intricacies of this most complex of all industries, I am convinced that fulfilling the promise of the computer utility represents one of the greatest challenges that Canadians face -- perhaps the greatest we have faced.

Ensuring the aggressive and imaginative exploitation of our new computer and communication resources for the benefit of all Canadians could well be our supreme challenge, dwarfing in both importance and scale even the audacious commitment to build the Canadian Pacific Railway that was made by an infant Canada, a hundred years ago. The reasons for this importance are familiar to all of you. For the past several years enthusiasts all over the world have vied with one another on hundreds of public platforms in describing the science-fictionish wonders which they saw just over the horizon of the future. Now, I am not really qualified to judge which of these infinite possibilities are science fiction and which are science fact. But I am certain that the universal availability of computer power, at the heart of the predictions, is bound to have an impact on the quality and nature of human society as far reaching and perhaps more fundamental than that of the industrial revolution of the nineteenth century.



To say that something is possible is not the same as saying that it is desirable, and the ultimate products of the computer/communications revolution could just as easily be evil as good. Technology is essentially neutral. It is what men do with it that determines the quality, and the technical advances that have made possible computer networks could become the ultimate instruments of society's total control. Potentially they offer both governments and private organizations the means for creation of an Orwellian world in which dissent would be all but impossible and conformity the price of survival.

Whether computer networks are used for such perverted purposes, or to multiply our capabilities and lift our country to unprecedented levels of achievement, depends on decisions that we must make and policies that we must adopt in the very near future. In this process we must keep our eyes not only on the Gross National Product but also on the Net Human Benefit.

You are aware that the federal Government, with other interested parties including the provinces, is engaged in a major effort designed to answer what the Telecommission Report on Computer Utilities termed a "fundamental policy question":

"How can Canada best exploit the computer utility concept to make the potentially revolutionary benefits of computer power available to the entire public and at the same time provide effective safeguards against the misuse of that power?"

An important step in our search for answers to this question was the creation in December, 1970, of the Canadian Computer/Communications Task Force under the distinguished direction of Dr. Hans von Baeyer. The cabinet directed to the Task Force to:



"speedily develop and recommend specific policies and institutions that will ensure the orderly, rational and efficient growth of combined computer/communications systems in the public interest."

I am happy to report that the work of the Computer/Communications Task Force is on schedule and I expect that Cabinet will have its full report as promised this spring. It should provide us with the factual basis -- technical, economic and social - - for development of what the announcement of the Task Force's establishment termed "an integrated network of Canadian computer utilities".

Such a network, I think, would be really a network of networks, consisting of hundreds or even thousands of essentially independent organizations ranging from government departments and crown corporations to independent private data processing companies. This concept is the antithesis of the monolithic monopoly structure that the conventional wisdom usually associates with the term "public utility". What I envisage instead is a highly decentralized, flexible infrastructure of institutions, hardware and software within which a multitude of networks and a virtually unlimited variety of competing services can grow and flourish in such a manner that they are equitably and conveniently accessible from any part of Canada.

This would seem consistent with what the original directive which led to creation of the Task Force listed as the minimum objectives for any national system:

- The most rapid expansion of services and systems possible without unduly disturbing our ability to meet other urgent social priorities.
- Service of public as well as private interests.
- The widest possible range of services to all social and regional groups in every part of Canada.







- Maximum Canadian control and ownership.
- Adequate protection of privacy, right of access and freedom of speech in all elements of the system.
- An overall system design flexible enough in concept and implementation to minimize problems of obsolescence and permit the rapid incorporation of improvements resulting from technological change.

I wish it were possible tonight for me to discuss with you the precise recommendations of the Task Force and the government's reaction to them. However, as I mentioned a moment ago, the Task Force report will not be available for several months yet. Its recommendations are still in the preliminary draft stage and there is no government reaction yet to report. On the other hand, from conversations with members of the Task Force and other experts, I have been able to formulate a few tentative general conclusions of my own which I assure you cannot qualify as Cabinet leaks.

One thing which comes through loud and clear is the enormous importance in both material and social terms of the computer/communications industry to the future of our country. Most authorities now agree that during the next ten to fifteen years this industry will likely become one of the two or three largest in many technologically advanced countries. In Canada's case, the Task Force's median figure for the industry's 1980 annual revenues is 4.2 billion dollars, or between 2% and 3% of the estimated Canadian GNP for 1980. At a recent OECD meeting in Paris, the Japanese delegation estimated that by 1985 the computer/communications area would account for 6% of the Japanese Gross National Product. At the fall meeting of the American Academy of Engineering there was general agreement that data processing and communications would be the



two key industries of this decade. It does not seem far-fetched to forecast that information processing power per capita may well become the principal determinant of a nation's wealth, and transfer of information and processing power a major item of international trade.

The direct economic impact of the computer/communications industry is, however, only one of many reasons for its importance, and is more than matched by the striking pervasiveness of its services and products. There is scarcely an activity of modern society that will not in some way be affected by remote access information systems. Insurance, health, government, reservation services, libraries, banking, to name but a few areas, are even now becoming major customers. As we move into the latter years of this decade and the early Eighties, we are likely to see a total transformation of many key sectors of the economy and widespread use of information terminals in the home.

The growth of such an all-encompassing high technology industry in Canada would also have a dramatic indirect impact on the economy as a whole.

This could take many forms. First, of course, is the productivity multiplying effect that widespread computerization can have on both our manufacturing and services industries. In fact, computerization is the *sine qua non* for the future economy of plenty and its offspring, the post industrial society, with all that this term implies in the way of an infinitely better life for all of us.

Just as important is the bootstrapping impact which the burgeoning of such an industry could have. Enormous capital investments in the tens of billions of dollars over the next two decades will be required, including a major expansion of our electronics manufacturing and computer



software industries. In some respects, the impact could be compared with that of the space program in the United States. Unlike the space program, however, all the products involved in the creation of computer/communications networks will stay on earth and continue to contribute to the well-being of our society for decades to come. A down-to-earth space program.

The dynamic character of the computer/communications field is another indisputable and extremely important factor that must be kept in mind when policies are being formulated. Technical change in the computer field has been continuous and pervasive for more than twenty years, and during that time has produced four complete generations of computers. In the process, it is not only components and systems that have changed but also the structure, nature and function of the organizations and industries that produce or use them.

There is every expectation that the current breakneck pace of change will continue and even accelerate over the next decade or more. So it is vital that we avoid rigid policy frameworks that would have the effect of imprisoning industry in concepts and technologies that technological advance might soon render obsolete. Innovation must be stimulated rather than discouraged and we must avoid measures which might dry up native sources of risk capital for new enterprises and force us to live in the cramped quarters of the status quo. Any policies which governments adopt must be distinguished by great flexibility and the capacity for both government and industry reacting quickly to changing conditions.

Another set of conclusions arise from the fact that, in the systems with which we are concerned here, the normal boundaries between data processing and communications become blurred. This has led to often heated debates about the appropriate roles of communications carriers and data





processing organizations in the provision of remote access data processing services. Basic policy questions were raised and have been under intensive study by the Computer/Communications Task Force. These included questions like:

- Should communications common carriers be permitted to provide public data processing services?
- In the event that the carriers are permitted entry into the data processing business, then:
  - What services should they be permitted to offer; i.e. raw computer power only or a full range of software services as well?
  - Should such services be tariffed?
  - Should such services be provided by the carrier itself -- "horizontal" diversification -- or should they be offered through a separate corporate affiliate -- "vertical" diversification?
- Should carrier customers be permitted to provide their own terminal equipment subject to suitable standards for the protection of the network and other customers?
- Should data processing and other organizations be permitted to establish additional data communications networks or provide special communications services like third party switching or multiplexing in competition with the carriers? If the answer is yes, should the carriers be required to interconnect with these new networks?





Now, without prejudging the precise nature of the Task Force recommendations with respect to these questions, it seems clear to me that there are some basic factors which must bear heavily upon government policy decisions in this area. One is the need for large investments of scarce national resources, both human and material, if Canadians are to reap the maximum benefit from the promise of the computer utility. This appears to lead us logically to the conclusion that we should not arbitrarily exclude any organizations from participating in the commercial data processing business unless their entry would have an adverse impact on competition or be incompatible with recognized social goals or established criteria for Canadian ownership and control. In the particular case of the federally-regulated telecommunications carriers, however, it seems to me that their participation should be acceptable only through a completely arms-length affiliate subject to the sorts of controls that were postulated in the Telecommission Report on Computer Utilities.

Turning now to the equally contentious issues of foreign attachments and third party multiplexing, we are faced with such problems as:

- The desirability of encouraging both rapid innovation and the widest possible use of terminals by the general public as well as business;
- The need for reducing the cost of terminals by eliminating such devices as customer modems and expensive protective and other connecting equipment;
- The need for new types of data transmission services, such as transaction oriented and other distance independent schemes;



- The urgent need for immediate, dramatic reductions in the cost of Canadian long distance data transmission if true national markets for our Canadian service bureaus are to develop and we are to avoid losing major portions of our business to the United States.

I recognize and applaud the recent initiatives of CN/CP and the Trans-Canada Telephone System in their plans for new advanced services and data transmission networks. If implemented quickly, they should go a long way toward meeting criticisms that have been expressed by members of the remote data processing service industry to the Task Force. Nevertheless, I feel that steps need to be taken to liberalize some of the existing restrictions on third party multiplexing and foreign attachments, and in the latter case to ensure that interconnection standards are set by a public body rather than by the carriers alone.

Of course, we must be careful that in our zeal to liberalize and encourage competition in the data communications field we do not end up by undermining or even destroying the economic base for the critically important regular communications services upon which all of us depend. But I tend to believe that competition and liberalization will in the long run result in lower overall costs and better service for everyone, provided there is careful monitoring by the appropriate federal and provincial regulatory bodies.

This brings me to some conclusions about the role of governments, and here we are faced with one crucially important fact. In most countries governments are already so intimately involved with computers and communications,



as both operators and users of systems, that they constitute the most important single factor in determining the pace and scale of future developments. Both in absolute terms and relative to other elements of the community, government expenditures are enormous.

In Canada, for example, the total expenditures on computer services during 1970 have been estimated as \$800 million of which the government share (including universities) was \$183 million, or about 24%. Of the government portion, the federal Government accounted for \$84 million, the provinces \$63 million and universities and municipalities combined, about \$35 million. Of particular significance in the case of the federal Government is the rate of increase which has been averaging 26% per year for some years now and which, if maintained, will push the federal expenditures beyond \$200 million per year by 1975.

Obviously, the judicious application of government purchasing policies for computer services can have an enormous impact on the way in which the industry develops. It is therefore essential that such policies be strongly imbedded in and responsive to our overall national policies for computer/communications.

The Task Force figures for 1980 revenues which I quoted earlier are median estimates based on current trend extrapolations. They are extremely sensitive to government policies, and a deliberate policy of encouragement and stimulation could make them very much higher. On the other hand, even the conservative estimates of growth are unlikely to be realized unless supplier, user and government actions are coordinated toward increasing the Canadian presence in the computer/communications field. This might involve: counteracting trends towards obtaining goods and services from foreign sources; stimulating





Canadian technology in appropriate areas of endeavour; supporting the marketing function for Canadian products and services domestically and internationally in order to achieve the necessary economies of scale; attempting to minimize costs to users so there is more effective and extensive use of computer/communications technology; and, in carefully selected areas, government participation in or assistance to the operation of certain socially vital networks.

It is both essential and urgent that there be planning and coordinated action by governments at all levels as well as by industry with the goals of

- meeting human social and economic needs;
- achieving optimum employment of investment capital and other scarce resources;
- promoting innovation, and
- fostering of scientific, technical, marketing and management capabilities.

Finally, when considering planning in the Canadian context, the unique characteristics of our environment need to be emphasized. The special problems and opportunities posed by such factors as: our unusual geographic conditions and demographic and industrial distribution patterns; our regional differences and disparities; our cultural diversity and official bilingualism; our federal system and our private enterprise economy in which the public sector plays an important role.

Theories, policies and experiences of other countries are not necessarily relevant to the solution of Canadian problems. New, uniquely Canadian solutions must be found if we are to cross successfully -- in human terms as well as technological -- the threshold into the post industrial world.





Being uniquely Canadian ourselves, we should be able to find those solutions. I am confident that we can and we will -- with the help of our computers.





Minister  
Communications Canada

Ministre  
Communications Canada

COMMUNICATIONS: THE IMPORTANCE OF PARTICIPATION

Notes for a speech by

HON. ROBERT STANBURY

Minister of Communications

to the

Western Canada Telecommunications Council

12:15 Tuesday, February 1, 1972

Canyon Gardens

Vancouver

FOR RELEASE: 15:15 EST



It has become fashionable to focus on the increasing technological complexity in telecommunications, but the complexity I find in evidence here this afternoon is a human one of individuals and organizations with so many varied interests in Canadian telecommunications.

Each one of us here today brings to telecommunications a different perspective and a different orientation. Many of you are concerned with manufacturing and sales; others represent common carriers; still others look at telecommunications primarily from the users' point of view. This variegated pattern of interests illustrated the need for a flexible and dynamic federal Department of Communications, both in terms of its own organization and the consultative mechanisms it must continue to develop with provincial governments and members of the telecommunications industry.

None of us can have failed to notice that there is a rapidly increasing degree of inter-action among all segments of industry, governments and regulatory bodies concerned with telecommunications. As Minister of Communications, one of my preoccupations is to promote a dialogue among all of us which will ensure that the directions we take are those which can best accommodate our sometimes divergent interests and our often mutual objectives.

Consultation between industry and government, and among governments, is a growing necessity in all fields of public policy -- none more than communications, a key sector of Canada's future.



Our Department tries to keep this always in mind, and I hope we have established our credentials as communicators. However, I would like to mention several developments which emphasize our intention to develop a departmental organization and government-industry collaborative mechanisms to ensure the maximum inter-action with provincial departments of communications and members of the telecommunications industry.

#### GETTING CLOSER TO THE PUBLIC

We have, for example, been undertaking a number of changes in the Communications Department to facilitate closer relationships at the regional level. You might recall that when the Department of Communications was established in April, 1969, it took over certain functions of telecommunications from other departments and agencies -- primarily the policy and regulatory divisions of the Telecommunications and Electronic Branch of the Department of Transport, and the Telecommunications Research Establishment from the Department of National Defence. That was the nucleus.

But that was not to say that the new Department's activities were to be highly centralized. Our Government is trying to bring decision-making closer to the public being served, and my Department is playing its part in the implementation of this policy. Since the appointment of five Regional Directors last year we have established a more effective regional interface with users of telecommunications as well as with industry and government. While the operational aspects of our inspection and interference programs have been decentralized for many years, we have recently decentralized the training of our technical staff. We





are planning, within months, the issuance of all initial radio licenses for all radio services in the regional offices. Already the regions issue licenses for the Amateur and General Radio Services and letters of authority for a number of other radio services.

In the Vancouver regional office there is now a permanent full-time staff of 37 people, and the Pacific Region has seven district offices which together have more than 20 additional people serving British Columbia and the Yukon. The numbers will grow as the needs do. We will try to make sure that the Department of Communications continues to be well represented in this region and well equipped to serve your needs.

#### COLLABORATION FOR PROGRESS

In the area of government-industry collaboration there are two forums which I want to mention. One of these is the Canadian Radio Technical Planning Board which is well established and has had a great deal of success in ensuring sound radio spectrum management for the overall benefit of telecommunications in Canada. The second is a very new mechanism still in its embryonic stage, designed to focus the collective attention of the telecommunications carriers and governments on amassing information which all of us require for the rational development of Canada's telecommunications networks.

Most of you are well acquainted with the CRTPB, of which the WCTC is a sponsor. It is an excellent example of how interested parties can work together and resolve differences while giving valuable advice to the Government. The Board has been most active in its response to



the problems of spectrum management. I have been impressed, for instance, with the way in which the Board is dealing with the question of the proposed use of radio frequencies reserved for TV broadcast, by the land mobile services.

In radio spectrum planning generally, we have felt for some time a need to establish a better framework in terms of a more comprehensive understanding of present usage, better long-range forecast of needs, and improved technologies for effective planning. I think this can be best exemplified by again referring to the land mobile service, one of the fastest growing radio services in Canada. It may well be that we should be planning for a day, perhaps within two decades, when Canadians will expect to have a telephone in virtually every automobile.

Speaking of consultative bodies, we are grateful for the consistently good and thoughtful advice that comes to the Department from your Council. Of particular importance is your contribution to the development of a frequency allotment plan for the West Coast VHF maritime mobile radio service, another expanding service. Your knowledge of marine radio communication needs, sailing practices and local navigation conditions contributed greatly to the planning. Furthermore, you took an active part in the initial discussions in December with our counterparts from the United States. These discussions were very successful and we expect future discussions to be equally so.

It is this kind of co-operative effort that produces an efficient use of the radio spectrum, for which I have found with satisfaction



that Canada seems to be particularly noted.

I mentioned a new collaborative mechanism. I would like today to outline its area of interest and its aims. Inter-action is partly a function of the number of people participating in separate related actions. In this regard our Canadian common carrier telecommunications domain is probably unique. At least it has few equals in organizational and regulatory fragmentation. The so called "long haul" carriers include the Trans-Canada Telephone System, the railway carriers, Telesat and the Canadian Overseas Telecommunications Corporation. Their spheres of operation include both competitive and non-competitive segments. The industry is regulated through federal and provincial Government regulatory agencies.

Over the years the industry itself has developed and used collaborative and action oriented forms of co-ordination with a considerable measure of success. A little more than a year ago our Department became closely involved with the industry in looking at Canada's long haul telecommunications facilities and the service usage of such facilities. The inter-action problems I have mentioned were only too readily apparent. What seemed to be needed was an on-going forum between the industry and governments.

Agreement was reached for the creation of a group now known by the strongly indicative title, the Working Group on Inter-Regional Telecommunications. Its membership includes representatives from the common carrier industry and federal and provincial departments of





communications. It has held several meetings during the past six months and has obtained from the carriers a useful picture of the current inter-regional telecommunications transmission facilities.

Well might you ask, as I did, what "inter-regional" means in this context. It was found desirable in looking at Canada's long haul telecommunications facilities, to identify regional facility groupings. The regions thus established, at least for present activities, were based essentially on provincial and territorial boundaries. Thus British Columbia is a region, as is Alberta, the Yukon, etc.. These regions are not necessarily co-extensive with the Department's field regions. They do have, though, a fair measure of conformity to many of the organizations in the industry and to provincial telecommunication agencies. Transmission facilities crossing these regional boundaries are designated inter-regional. But a word of caution. Classification of facilities and services as between regional and inter-regional is subject to much qualification.

One of the first actions of the Working Group was the commissioning of a work team to analyze current inter-regional transmission capacity and usage and 1980 forecasts of inter-regional transmission capacity requirements. The carriers supplied the necessary data. The analyses were completed and made available to the Working Group. The Group fully realizes the imponderables in the situation. The information is to be used by the Department in the next logical step in the process -- that of collaboration in the creation of a comprehensive picture of the carriers plans to meet the 1980 requirements and to move forward rationally on a national basis.





I appreciate that the nature of future demands are still vague. Nor can we see clearly at this time the degree of change of transmission capacity to the digital type needed to better handle developing data and other services. What can be seen, and what are important in the planning process, are the direction of movement and the speed of change.

The analyses portrayed the carriers' input data in several interesting forms. Our people took these data and put together an unsophisticated global look at projected growth. I'll let the figures from the carriers' projections speak for themselves. In the period 1973 to 1980, additional inter-regional transmission capacity will be needed in an amount greater than all such capacity built into the systems in the industry's history prior to 1973. (This is exclusive of transmission of television programs, which is difficult to predict.) That is, to meet the expected demand by 1980 the inter-regional transmission capacity of Canada's communications network will have to be doubled.

This is a phenomenal growth projection: more than 12 per cent per year. A breakdown of this forecast shows an expected 10% growth in the Canada-US traffic, 15% in inter-regional domestic traffic and 20% in overseas traffic.

The West Coast scene stands up well in this global comparison. Growth rates between British Columbia and other Canadian regions are expected to equal or exceed the best of other inter-regional situations. British Columbia is a large and growing gateway between Canada and the US. The province is also a significant point of termination and switching



for overseas traffic and a major gateway for overseas circuits which transit Canada.

Perhaps one of the most interesting observations from the point of view of Westerners is that British Columbia and Alberta are changing the communications map of Canada. Now the centre of gravity has shifted to the west and, consequently, a new growth of traffic is developing in the east-west axis. Communications is drawing us closer together.

#### THE COMMUNICATIONS ENVIRONMENT

Our Department is vitally interested in the socio-economic environment of telecommunications. We are attempting to find out what telecommunications systems are doing to Canadian society and to the Canadian individual, to learn what they might be able to do for society and the individual, and to assess the needs and demands of society and the individual for telecommunications services. I am aware that the WCTC has reservations in this area. But I must say that, at the present time, I do not share this view.

If we have learned anything from the political and social upheavals of the past few years, it is surely that efficiency is no longer enough, or rather that it needs to be re-defined so that its measurement goes beyond the traditional standards of whether a particular product works, is economically viable and its cost reasonable. Efficiency also has to take account of such intangibles as the extent to which a particular service or product meets and fulfils social needs and goals.



The telecommunications industry has a major impact upon the environment which extends beyond its qualities as the provider of communications systems and services. The industry is a major source of employment, a major user of capital, a major source of research and development. All these qualities add to the intrinsic importance of the industry and therefore to its importance to Canada.

The particular kinds of services the industry provides can have impacts that are far harder to measure. Let me give one example. With some exceptions, Canadian long-distance rates are higher than equivalent rates in the United States, but in a number of instances our local subscription rates are lower. Given the elongated demographic shape of Canada, it is not hard to muster political and social arguments in favour of reducing barriers to east-west communications by doing everything possible to lower long-distance charges.

One aspect of the communications environment to which we are devoting considerable attention is the possibility that highly-efficient computerized data banks could lead to invasions of personal privacy. I deliberately said "possibility" and "could" because the simple transformation of manual records to automated records does not in itself create any invasion of privacy. The issue arises only as a consequence of the ways in which that information, now more abundant and more readily available, may be used.

All of these issues are extraordinarily complex and defy simplistic solutions. For instance, we would all welcome lower long-distance tariffs





as I mentioned a moment ago. However, unless carrier revenues are to drop, a reduction of long-distance charges would have to be made up elsewhere. If one simplifies (or over-simplifies) the equation by assuming that none of this lost revenue is made up in increased usage, then the obvious replacement source is local service charges. Yet an increase in monthly subscription rates could work a hardship on those subscribers -- in low-income groups, for example -- who have little or no business reason to make long-distance calls and hence would draw less benefit from a reduction in long-distance tariffs. We plan to study this area in depth, but the conclusion we draw from all our labours could be that the present rate structure is the best possible one for the interests of the country as a whole.

Similarly, the need to protect the privacy of Canadians from accidental or deliberate misuse of information in computerized data banks must be balanced against the enormous potential and actual benefits of these systems to society. A Task Force organized jointly by the Departments of Communications and Justice should report to us by June. Much like the Telecommission report, Instant World, the Task Force report will describe and explore the issues, examine in a preliminary way some actions that have been proposed, and lay the basis for a detailed examination and definition of possible measures by governments and industry.

#### RATIONAL RATE REGULATION

Finally I want to mention the regulation of telephone rates. In this Province of British Columbia, virtually all the companies providing telecommunication services are subject to federal regulation;





the responsible body is the Canadian Transport Commission. Some others are under provincial jurisdiction. It is all part of the intriguing mosaic of provincial and federal companies and regulatory bodies that make up what we euphemistically call our Canadian communications system. If it defies the logic of orderly organization and a unified governmental overview, it does perform exceedingly well and provides a variety but also an efficiency rarely found in the monolithic structures of many other countries.

It works well. But at what cost? This is the great unknown. Performance is highly visible but cost is not. Probably the greatest concern of the people today in this field is how to know, in the absence of competition, whether or not they are receiving value for their money.

You had last year a contentious hearing on B.C. Telephone Company rates. Regulatory bodies have usually been able to cope in broad terms with determining the total revenue requirements of companies subject to their purview, although even here it is not an easy matter to make appropriate allowances for such intangibles as innovation and research. When it comes to the rates of one service against another, analysis becomes very difficult. Nonetheless, one tool in such an analysis is an agreed system of uniform accounts. Beyond this is the establishment of cost separation formulae for the various services. Finally the principles for ratemaking should be established and followed.



When our Department was involved in the far-reaching Telecommission study, this subject was consistently raised by the interested parties and the report, Instant World, referred to the need for more information on cost allocation. I am pleased that the Canadian Transport Commission has decided to launch a special study in this general area. Our Department will collaborate fully with the Commission in its study. However, there are, of course, limits on their jurisdiction in matters of this kind and we therefore intend to conduct a rather broader study of our own, one which can include wider provincial consultation, international considerations and perhaps the views of some foreign governments. My intention is to have all issues of costing aired to the fullest extent possible. We need not fear that this will upset the rating structure, which some consider to be now delicately balanced to satisfy social and political as well as financial needs. I have no doubt that this is a sensitive matter. It may be that in the long run the results will do no more than sustain what is in existence today. If that turns out to be the case, at least then we should know much more about its validity. And that, too, will be progress.





Minister  
Communications Canada

Ministre  
Communications Canada



Notes for a speech by

HON. ROBERT STANBURY, P.C., M.P.

(York-Scarborough)

Minister of Communications

at the

Eskimo Inn

INUVIK, NORTHWEST TERRITORIES

8:30 p.m. SUNDAY, February 27, 1972

FOR RELEASE  
SUNDAY FEBRUARY 27: 6.00 P.M. E.S.T.

House of Commons  
Ottawa K1A 0A6

Chambre des communes  
Ottawa K1A 0A6



My purpose in coming to the North is to see the land and to make contact with its people -- or some of the land and some of the people -- and I am acutely aware of the limitations of so short a trip. I would like to use this occasion to try to explain some of the goals of my Department, and to describe some of the ways by which we intend to help improve your communications. There is no future in making policies or plans that are not responsive to the real needs of northern residents, so I hope you will confirm that we are on the right course or suggest what changes you feel we should make in our planning.

Northern communications, in my view, demand urgent national attention. The pace of change is rapid and care is needed to see that our communications initiatives are in harmony with northern circumstances. I believe that my Department can play a constructive role in the building of the North if we can ensure that a balance is maintained between communications' twin roles as a means of social development and as an essential supporting instrument for economic development.

The Department of Communications undertook a major study on northern communications as part of the Telecommission studies. This enquiry attempted to determine northern





communications needs and priorities, as described in the Telecommission general report, Instant World.

Also, as an integral part of the Telecommission studies our Department co-sponsored, with the Department of Indian Affairs and Northern Development, the Communications Conference which was held in Yellowknife in September, 1970. At this conference, northern people expressed themselves on a number of issues that were of vital concern to them. They told us then that some of our priorities and plans had a southern bias and that they left untouched some fundamental deficiencies in communications which should have received first attention.

These criticisms were not taken lightly. One of my first actions as Minister of Communications was to order a fresh look at existing plans for the North. I wanted to see our available resources used to give more direct benefits to the less developed settlements, and to be responsive to the expressed needs of those who live in the North. I asked my officials to recommend programs that would reflect this change in direction and emphasis.

An analysis of communication problems in the North suggested that our Department should give equal priority to four overlapping requirements. First, the particular needs and cultural values of native Canadians must be understood so that they can use technology in their own



way for their own social benefit. Second, there is the need to extend the national telephone and broadcast networks to the North, so that closer ties with the South can be fostered. Third, it is essential that communications systems support economic development and growth. Fourth, the need to maintain Canadian sovereignty and control of the Arctic and surrounding waters demands communication networks that are pervasive and adaptable throughout the whole of the North.

Particular attention must be given to the use of communications facilities for social development. Our aims in this area are:

to apply communications technology to the special needs of remote and isolated communities with the first attention being given to the needs of native people;

to develop specific services for communications within and between communities, education, health and welfare -- including the development of the most appropriate hardware;

to develop the ability within isolated communities to produce broadcast programs and operate communications systems to further the cultural aspirations of residents.



The extension of the national network for telephony and broadcasting to the North is one way that the federal government can work to eliminate regional disparities. There are economic, political, and operational advantages in communication systems that can achieve full national coverage because they have a potential for achieving social unity.

The proper exercise of sovereignty in the North requires telcommunications that are adaptable and flexible, from the standard of the special characteristics of our North. So we have set for ourselves these main goals: the provision on short notice of basic communications services anywhere in the North, to standards similar to those available in the south; the availability of telephone and message service to mobile parties anywhere; the ability to expand rapidly communications facilities at any existing or newly established location.

Our Department will be striving to meet these goals in the next few years. We are confident that the technology will be available, or will be forced into existence, by programs of research and experimentation.



We will be implementing these goals with several considerations in mind.

We must ensure that a proper balance of terrestrial and space systems exists to meet the wide variety of Northern communications requirements.

We must rationalize the federal, territorial, industrial and private communications needs and systems in the interest of coordinated and cost-effective networks.

We must continue to carry on field experiments of telecommunications services to learn more about the desirable features of operational systems, and we must select appropriate northern areas or communities where such programs can be conducted.

Telesat Canada, an independent corporation created by Parliament in 1969, must receive our support in extending the domestic satellite communications configuration to meet the objectives of the Satellite Communications White Paper of 1968. As part of the process the Government must strengthen its consultations with





provincial and territorial authorities on their individual requirements for educational and general telecommunications and broadcasting services for remote areas.

This is our broad approach in general terms, but now I want to discuss certain specific issues that are current and debatable. Earlier this month the Arctic Institute published a Man-in-the-North report which reviewed the current communication facilities and services and concluded that some of the real needs of the North are not being fulfilled by existing systems. Let me say in all candour that some of those criticisms were valid, but the ability of Telesat's Anik satellite to meet Northern communications needs should not be underestimated. It is not that we have not known what to do; it is just that it takes time to develop methods to meet these needs. Almost a year ago Telesat Canada, other communications organizations and my Department began to develop a significant extension of the Anik program so as to improve two-way communications in the North. There



are serious technical challenges to be met and we are meeting them. But, it takes time.

An additional service, the "thin-route", is now being planned by Telesat Canada with the cooperation of the Department of Communications and Bell Canada. It will respond to the first of the expressed needs of northern people: that immediate attention be given to the demand for reliable point-to-point communication services between communities in the North. The first phase of this service is to bring reliable telephone service to over a dozen communities at locations to be selected in the Districts of Keewatin and Franklin.

Insofar as the television program content of the satellite is concerned -- which will be directed first primarily at the larger communities -- plans are being developed by the Canadian Broadcasting Corporation to assess the conditions under which programming can be provided through the optimum use of the initial satellite deployment.



This live network and specialized programming will be a major improvement on the present service provided by means of Frontier Packages. I favour the development of programs to meet the interests and requirements of the inhabitants of the North. The financial and human resources necessary to move in that direction are not easy to secure, but, given the necessary priority assignments, are certainly possible.

The fact is that the Anik satellite system is the one instrument that can meet the basic -- not all, but the basic -- communication needs of the North. The satellite is a highly flexible tool to implement broad goals of national communications policy. There is work to be done, and I will do all I can to see that it is done quickly, to ensure that a variety of services are extended to communities in the North. The satellite can be exploited to provide necessary and complementary community services such as telephone communications, and data services, and can also support possible regional and local programming on radio and television.



Only a satellite can overcome the realities of the North -- adverse climate and harsh terrain, great distances between communities, and the need to exchange information by northern lateral communication satellite is a unique facility for overcoming vast distances. The distance between Inuvik and Ottawa becomes essentially the same by satellite as the distance between Inuvik and Aklavik. The quality, cost, and reliability of transmission is the same. This could in time result in telephone rates and tariffs that are less determined by distance and more in step with the calling habits of northern people. The fact that Anik will put all its connected communities door-to-door is a positive and, previously, an unattainable objective. It will not retard but rather will aid the development of complementary local communications, because it will provide a base on which we can begin to build.

We are taking several more new specific steps. The first, as I announced to your fellow citizens two days ago, is the opening of a Northwest Territories district office of the Department of Communications at Fort Smith. This office will greatly increase our





knowledge and understanding of the North. Secondly, we have established within our Department a Northern Pilot Project office which will be responsible for establishing, in consultation with citizens of the regions, a number of experimental communications systems -- community broadcasting stations, videotape units, dedicated HF networks -- in selected communities in the Northwest Territories and Northwestern Ontario. These pilot systems will be made operational on the basis of two principles: first, those who use them should control them; second, training, both technical and production, must be provided in step with the installation of the systems themselves.

Thirdly, we have given our support to a program of the Ryerson Institute to develop a low-cost FM broadcasting transmitter which, if it proves satisfactory, could be used in small remote communities. We are also participating in the "Comminterphone" experimental system in Rankin Inlet which combines the characteristics of a telephone conference call with those of an unattended radio broadcasting station. We have just received



an interim report on the operation of Comminterphone. One statistic caught my eye: the breakdown of the language used for conversations was 8% English and 92% Eskimo.

If these experimental programs at the local level prove effective it is not difficult to see how the Anik satellite could be exploited to achieve further social benefits. The new thin-route service will have earth stations that can be equipped for radio reception of the CBC northern service. The ideal arrangement would be to extend the CBC northern service by Anik to those communities in Keewatin and Baffin that are completely cut off from the network. A combination of national radio programming and local broadcasting during the day would be ideal and practical.

And there are major satellite experiments for the future. The Department of Communications, in conjunction with NASA, is building an experimental communications technology satellite to be launched in 1975. This experiment will be of special interest to the North. By using a satellite with a high radiated power,



it will be possible to communicate through low-cost stations to the smallest communities with telephone, radio and television signals. While the smallest Telesat earth station will be using an antenna having a diameter of 15 feet, the stations linked to the new experimental satellite will use antennae of diameters of 3 to 8 feet. The experimental satellite will have a life-time of 2 years, and should provide information as to the cost effectiveness of using high power satellites that may become available in the next decade.

I am glad today to be able to describe specific programs and concrete possibilities rather than have to resort to hopeful generalities. Our problem is still that of doing what we want to do, and know should be done, as quickly as we would like. We are -- and you may be tempted to say "finally" -- aware of the particular needs of the North. We are also aware, at times a little painfully, that to overcome those needs is not an overnight undertaking. Basic, high-quality telephone service should be extended as widely



as possible; broadcasting, both TV and radio, should include a mixture of southern and locally-originated programming; there should be adequate communications not only north to south but between communities and within communities. This total bill of fare comes at a high price, and spending on communications must be assessed against the need to meet other national priorities.

The Department of Communications already provides financial support to CN Telecommunications in the amount of \$220,000 each year for the operation of the Mackenzie River pole line system which runs from near Hay River to Inuvik. I think you might agree that this system has been a lifeline to the community by providing you with telephone, telex and radio program services. Our Department also supports the operation of the Frobisher Bay telecommunications station at a cost to us of \$100,000 per year.

Five days in the North, and I am almost at the end of this tour, which is literally and figuratively





a flying trip. Five days makes me an expert on nothing -- except on one thing: how little I know about the North, and how much there is to know. I hope you will use our new departmental district office at Fort Smith as a channel to express your needs; I hope you will express them to the officials accompanying me, some of whom have particular responsibilities for northern communications programs. I hope you will maintain active dialogue about those needs with your excellent M.P., Bud Orange, with my colleague Jean Chrétien, the Minister of Indian Affairs and Northern Development, and with me, both while I am here and when I am back in Ottawa. If there is anyone you should be able to communicate with freely, it is the Minister of Communications, and I will welcome it.





Minister  
Communications Canada

Ministre  
Communications Canada

Government  
Canada

FOR RELEASE AT 8:45 P.M., SUNDAY, MARCH 26, 1972.

Notes for a speech by  
HON. ROBERT STANBURY, P.C., M.P.  
(York-Scarborough)  
Minister of Communications

at the  
ROYAL SOCIETY OF CANADA  
SPECIAL SYMPOSIUM ON  
COMMUNICATIONS INTO THE HOME

8:45 p.m., Sunday, March 26, 1972.

National Library of Canada  
Ottawa



The purpose of this symposium, I understand is to look at the technology which we now have and which we may have in the future, and to reflect on some of the factors which may affect the evolution of communications in the Canadian home. In the next two days you will be hearing papers on various technical, social and economic aspects of this question.

The chairman of the organizing committee, Dr. W.B. Lewis, has told me that this symposium arose out of a concern on the part of some of the fellows of the Royal Society of Canada that "the time has come for man to set social goals and then to challenge technology to get him there."

That concern is valid. Technology is primarily a means to an end. And I feel that too frequently the means are not related to the desired results. We look at the technical possibilities and the economic feasibility of a system, and let these be the weighing factors in decisions, without examining carefully all the social results. But, at the other end of the continuum there are those who look solely at the question of impact on the individual in a social sense, with little regard for the technical issues involved. To my mind, what is needed is a continuous consideration and coordination of all the aspects of communications throughout the process of its evolution. This approach may place an added burden on decision-making, but the result surely will be better policy decisions.

And there are many decisions to be made in the communications area. In this symposium many of these areas are to be covered, and I am hopeful that during the next few days you will be able to give some guidance to those of us who have some responsibility for developing policies for Canadian communications.



I understand that one of the background documents used in the preparation of the symposium was "Instant World", the general report of Telecommission conducted by my Department to provide a basis of information on telecommunications in Canada. It is heartening to see the Royal Society of Canada picking up the challenge and extending the examination to communications into the home. "Instant World" records that Canada is now the world's per capita leader in cable television, since in Canada nearly a quarter of all urban households are served by cable systems. The ways in which technology can be developed for broadband communications networks with 50 or more television channels, and also incorporating two-way communications with computer networks and data banks, appear straightforward when applied to tens of thousands of subscribers of urban areas. However, these techniques may be far too costly to meet the needs of smaller, remote or isolated groups in our society. But they raise exciting possibilities. They invite a host of technical questions. They also invite a host of much less easily answered questions about their social value, their economic cost and benefit, and their cultural impact.

Quite another type of communications system will be needed to respond to the needs of some Canadians. Last month I had an opportunity of visiting some of the remote areas of the Canadian North, in the Yukon and Northwest Territories, as far north as the mouth of the Mackenzie River within the Arctic Circle. There I found, along with an appealing zest for northern life, a deeply felt sense of deprivation and separation from the Canadian mainstream. There is in this isolation a lack of contact with others in neighbouring communities only a few miles removed in physical terms but separated by a wide chasm in





terms of ability to communicate by any means except the "moccasin telegraph". I found that, throughout the area that I visited, people are looking forward to our Canadian satellite communications system being developed and installed this year by Telesat Canada. The Anik satellite will bring a new dimension in communications to many homes in the remoter parts of Canada. It will help them to communicate by telephone with their neighbors and with the main stream of Canadian life in the more densely settled parts of the country. It will bring them live television for the first time as well as improved radio broadcasting services. People in the North expressed to me their keen expectation that the communications satellite will help them in very practical ways in their daily lives and bring them more closely into communication with their fellow-Canadians.

It seems that only a satellite can deal with the realities of the North -- adverse climate and harsh terrain, great distances between communities. The communications satellite is a unique facility for overcoming vast distances. The distance between Inuvik and Ottawa becomes essentially the same by satellite as the distance between Ottawa and Hull. The quality, cost, and reliability of transmission is the same. The fact that Anik will put all its connected communities door-to-door is a positive and a previously unattainable objective. Anik will also give us a base upon which to build.

In the North, with its distinct cultural characteristics, there is a need, more strongly felt perhaps than elsewhere in Canada, for what might be called community communications systems. I am thinking, here, of radio broadcasting stations operated by the community for the community. My Department, working with the



University of Saskatchewan Institute of Northern Studies, is engaged in evaluating one such local system -- the Cominterphone system in Rankin Inlet, N.W.T.. This summer, as part of another pilot project program, we will be installing a number of such systems in remote communities in the Keewatin District of the Northwest Territories and in Northwestern Ontario.

Tomorrow morning the symposium program begins with a discussion of broadcasting, of computers and of communications networks. Broadcasting is a very powerful cultural force which successive Canadian governments have been at pains to ensure should be developed in a Canadian way. Your first speaker, Mr. Graham Spry, I know can speak to you eloquently of its history since he is himself so much a part of it. But, as he well knows, broadcasting is changing its dimensions. Broadcasting is no longer simply a question of the mass distribution of entertainment and information.

No one doubts that television is a very powerful medium in the formation of the cultural personality of a people. It is perhaps time that we recognize its importance as an educational tool, and that we take this further into account in the future development of broadcasting. When one begins to think along these lines, one must ask questions about the kind of program material that is necessary or desirable, whether broadcasting should be sponsored by government or by commercial organizations or by both. What are the economic and social implications of broadcasting of almost infinite choice? I am sure you will be thinking about such questions during the next two days, and I hope that your discussion of them will help governments, federal and provincial, in developing new uses of broadcasting in the most flexible and beneficial way for all Canadians.



The symposium will deal with computers as they may be connected in the homes through the medium of telecommunications. Some aspects of this topic have been the subject of intensive study. The Science Council of Canada has published a study, and one of its authors is Professor Leon Katz of the University of Saskatchewan who will be speaking to you. The computer, tied in with the information explosion, offers exciting prospects for all who are interested in human progress. Mankind will be able to become more educated, more cultured and more catholic in its pastimes. There will be a time -- not so very distant -- when we shall have remote and automatic access to a vast continental system of stored information.

In my own Department, a study has been in progress during the past year of the computer in its relation to communications. Questions of commercial development, of interconnection with the telephone system, of competition and regulation, of provision of hardware and software -- these and many other topics are being studied by the Canadian Computer/Communications Task Force. These studies have shown that in a modern state the computer is becoming an indispensable tool for business, for schools, for government, and that there is a tremendous variety in the way in which the computer is being organized to meet human needs. I am looking forward to having the report of this Task Force very soon.

There are other issues raised by the computer. The information system which it supports will not be limited to a few select fields. It will be all-embracing, involving virtually every area of human activity. All useful knowledge will be stored this way, and probably a lot of useless knowledge as well. Very little that touches humans





will remain beyond its grasp -- certainly not the privacy of the individual. Information will be available not only on a person's level of education and career performance, but also on everything related to his credit rating, his debts, the way he spends his money, his physical and mental health, the operations he has undergone, his criminal record and just about anything else about him. In this electronically informed society the computer can, in short, keep up-to-date on everything significant relating to the individual as well as with much that is insignificant. Those with access to this information can thus obtain a tremendous capacity to observe and assess an individual's behaviour in any number of situations where his past conduct or individual qualities might be considered of some relevance.

The question, then, is under what conditions we should allow different types of information concerning an individual to be collected, and should we allow such files to be combined and stored? Also, to whom should the information be available once it is collected?

A study on the relationship of computers to privacy has been undertaken **jointly** by my Department and the Department of Justice. The sheer power of the computer to masticate and to digest massive quantities of data creates a new dimension of danger of intrusion into the privacy of the individual. You will, undoubtedly, hear something of such issues tomorrow.

I hope that you will also hear something about what the computer will mean to each one of us in his own home. Rosy pictures have been painted of the housewife escaping domestic drudgery, shopping, and even the choice of menus for her family's meals through





the use of a computer terminal in her home; a terminal which will enable her to satisfy Johnny's dislike for spinach, or her husband's need for low calorie meals and the baby's special diet, all at the same time. We have also heard that we may be able to do our shopping by a television screen, select the purchases and charge them automatically to our bank accounts through our computerized chequing account: the cashless society! Are these suggestions realistic? What control will there be? Who will pay? How will it all affect our social and cultural patterns of behaviour?

For example, what effect will all this have on the lives of women? Anne Francis will be discussing this subject with much more authority than I can, but I might venture that it seems, at a time when women are defining their roles and seeking to become more active in the world around them, technology may be plotting new ways of isolating them to an unprecedented degree.

Obviously, the development of communications will bring with it some dangers which will have to be faced. For the present, there are still areas where our problems come from insufficient development, rather than over-development. Canadians have become used to a very high standard of service from our telephone system and have a reputation of being one of the talkingest people in the world. Nevertheless, there are some parts of Canada which are still deprived of even the most rudimentary telephone service. But the telephone system is changing very rapidly. New services, new technologies, new capabilities, are ahead of us. In a sense, the wired city has already arrived when into each of our homes there comes at least a pair of wires carrying telephone and, in many, another cable carrying television.



We agree, I am sure, that the development of communications technology in Canada must be planned and co-ordinated, but at the same time it must be free to allow for innovation and creativity, and to be responsive to the social needs of the country as a whole. In the Department of Communications we have a planning service, which identifies areas for new communications research and development, and the Communications Research Centre, which carries out research and development on terrestrial and space communications systems and radio propagation, among other areas. They work closely not only with other government departments and agencies but with the universities and with industry.

It is an essential element of our social and economic organization that we also rely heavily on private incentive and enterprise for our communications development, and for our present communications needs. At the same time, we must be concerned with protecting the public interest. One of the means for protection is the regulatory process, where the interests of the public individually and collectively can be represented and where claims by the industry, which provides the services for an adequate compensation, can be judged. Within Canada the rates for telephone services are regulated by the Canadian Transport Commission; and broadcasting by the Canadian Radio and Television Commission. These two commissions have been delegated powers by Parliament in each of their areas of responsibility. But what happens when the technology develops and blurs the boundaries between the areas of responsibility? An example of this is cable television, which is a type of broadcasting, but which bears within itself the potential for providing other kinds of services



similar to some of those which might be provided as a telephone service.

Another means of protecting the public interest is the government's role as consumer. The direction of the communications industry is affected by its ability to market the products it develops, and these products, if they are to be successfully sold to the government, must meet the requirements of carefully predetermined criteria. Setting criteria, then, is an important factor in influencing communications technological development.

Gail Stewart, an Ottawa economist who is taking an active part in this symposium, gave a paper to the seminar on the wired city which was sponsored by my Department and the University of Ottawa in 1970. She said then:

"... I am making an argument for a planned mix of various methods of social control over the communications industry in pursuit of certain defined objectives. Social control policies in my definition include competition policies, various kinds of regulation, and certain forms of government encouragement or discouragement of private industry." What she advocated seems to be happening today.

In all of the discussions of communications and technology, though, lurking in the underbrush are the economic facts of life; someone must pay. There are three main sources of financial support for telecommunications in Canada. First, of course, there is direct payment for service received, for example, for telephone service or for cable television. Second, there is direct support from the public, as from the taxpayer for the national broadcasting service. Thirdly, there is support by commercial sponsors for radio and television. These three -- payment for service, public support and commercial sponsorship -- one way or another pay for all of our variety of communications. The question which comes to my mind is





whether the recipe of the past is necessarily the best recipe for the future. I am sure that some of your speakers will have something to say on this topic, and that you will have the opportunity to discuss some of the alternatives.

I notice that the final phase of your symposium will consist of a series of workshops, in which you will have an opportunity to discuss the questions which have been raised during the formal presentations and to question some of the conventional or unconventional wisdom which may be presented to you by the experts. I am hopeful that you will be able to throw some light on the future in these workshops, because all of us in the communications field are concerned with the long-term implications of the policies we are now developing.

I am grateful to the Royal Society of Canada for providing this opportunity for exploration of an important topic, important to all Canadians. In opening this symposium, since Dr. Lewis referred to "Instant World" in defining its objective, I might leave you with a lot of wisdom from that excellent document.

"The existing structure of Canadian telecommunications systems is one of the most sophisticated in the world, but this is not to say that everything is perfect. Telecommunications policy may have to be re-shaped if full advantage is to be taken of the opportunities that technology affords and if socially undesirable effects are to be avoided. For, in the words of Francis Bacon, 'he that will not apply new remedies must expect new evils; for time is the greatest innovator'."







Minister  
Communications Canada

Ministre  
Communications Canada

"COMPUTER COMMUNICATIONS IN THE SEVENTIES"

Notes for a speech by

HON. ROBERT STANBURY

Minister of Communications

at a dinner meeting of the

DATA PROCESSING MANAGEMENT ASSOCIATION

Toronto Chapter

April 17, 1972

Town & Country Hotel

Toronto

TO BE RELEASED AT 7:30 P.M., APRIL 17, 1972.

*House of Commons  
Ottawa K1A 0A7*

*Chambre de  
Ottawa K1A 0A7*



One of the major characteristics of the Seventies is the increasing pace of economic and social change, of which computers and communications combine as one of the main components. Alvin Toffler, in his book Future Shock, has given us a glimpse of the effects these changes could have on both individuals and society -- some good, some undesirable. It is essential, therefore, that we be able to define as soon as possible both the promises and problems involved, and to develop policies which will take into consideration the needs of all Canadians.

As you know, the Federal Government is already deeply engaged in this process. As a result of the work of the Telecommission, the Canadian Computer Communications Task Force was established in 1970. Its 25 professional personnel have been investigating the present status, and the future prospects, of computer communications in Canada. Their objective is to recommend government policies which will ensure the positive and dynamic development of the industry. The final report of the Task Force will come to Cabinet very shortly, and I will do my best to ensure that it gets the prompt, serious and sustained attention it deserves.

We have yet to recognize, as governments and as a society, that ensuring the imaginative exploitation of computer communications resources for the benefit of all Canadians could well be one of our supreme challenges during the Seventies. I am deeply concerned that their impact be fully understood, and that we establish policies which will both safeguard and advance the Canadian individual and national interests. The influence of computers already pervades most segments of our society and economy. Peter Drucker, in The Age of Discontinuity,



has identified "the information industry" as one which will cause major changes in our socio-economic systems, becoming one of the main sources of employment and development in the balance of the century. Its importance to all of us is unquestionable.

Computers and communications are increasingly involved in the economic functioning of the nation. They are more and more vital to the efficiency that is so essential in maintaining Canadian industry's competitive position in national and international markets. They have become indispensable tools in the operation and administration of most large and medium-sized industrial and business undertakings. They are now slowly beginning to show their potential for a highly personal impact on society. Applications are already in existence which eventually will reach into the life of every individual. This process is just building up steam, but before this decade is over the Canadian public at large is bound to have much more direct experience of computer-based systems. They will be offered an ever-increasing range of such services into their homes. Education, entertainment, banking and shopping by cable; video libraries, electronic mail and electronic newspapers; all are within our technical grasp.

Activities in the public sector, at all levels of government, benefit increasingly from the possibilities of rapid information retrieval, storage and distribution through computer communications technology. Such applications could have a profound impact on society through their role in crime detection, health care and welfare, national security, financial transactions, transportation and manpower development --



just to give some prime examples.

In Canada, employment in all aspects of computer manufacture and use totalled approximately 40,000 by 1971. The total number of computer systems installed had grown to about 3,600, about two-thirds in the private sector. The remaining one-third are used by the federal, provincial and municipal governments. Total expenditures, on all aspects of this same industry, now approach a billion dollars a year. By 1980, if present growth rates and trends continue, Canada will be using about 14,000 computers, spending about \$4 billion, and employing nearly 150,000 highly-skilled and highly-trained Canadian personnel. If governments should adopt policies to stimulate the industry these figures could of course be very much higher.

The rate at which computers have penetrated and continue to penetrate the fabric of society and the economy and the extent of their impact are almost unparalleled in industrial history. Perhaps only the telephone and the automobile have had as far-reaching effects. This phenomenon cannot help but revolutionize our lifestyles. And as exciting as many of the changes ahead will be, the very speed with which they take place is bound to generate distrust and suspicion. The hazards of excessive automation have already been widely publicized and much debated. To prevent public paranoia, as well as to maximize the benefits and to minimize the perils, the public in general and governments in particular will have to be broadly involved in the creation of the computerized society, if it is to be as successful as it is inevitable.







Comparisons have been drawn between the emergence of the computer communications industry and the development of electrical utilities in the second half of the past century. Services developed to serve major customers initially may ultimately serve the public in general. However, the idea of a generalized computer utility, providing raw computer power to many users, seems at least premature and perhaps unrealistic. So far, the computer communications service industry, which provides computing power, software and systems consulting and programming services, seems to have few of the characteristics of a utility. I am inclined to this view because:

- There are already a large number of highly-competitive members of this service industry.
- Capital requirements for initial entry into the industry are not so high as to act as a restraint to entrepreneurs.
- The services offered are many and varied, in contrast to public utilities, each of which generally provides a single service (although sometimes in a variety of forms).
- The number of users of computer communications services is small compared to the numbers served by the established utilities.

For these reasons, the kind of controls and regulations which are suitable for public utilities do not seem appropriate to computer communication services today.

What may well develop is a highly decentralized web of networks, offering customers a flexible repertoire of hardware



and software, with a virtually unlimited variety of competing services. The extent of services required by users is very broad, and their demands will continue to increase. I feel it is essential that an environment be created in which these services can grow and flourish.

We seem to have reached, in the use of computers, the threshold of a new era or at least a stage of transition. Much past work has concentrated on the development of discrete computer systems, servicing individual companies and focusing on the internal operations of those companies. The systems of the future will demand large investments and an increasing number of users. To ensure success, mass involvement will be needed in systems like real estate data banks, general information data banks, point-of-sale data collection, credit checking systems and integrated computing systems for universities, hospitals and similar organizations. Many of the offerings in this field are likely to be of a commercial type, and high business risks will be involved. In addition, new systems technologies, new hardware and software, will be needed before some of the ideas can be as broadly implemented in practice as they now are accepted in theory.

Competition has been a prime force behind economic progress in many industries, and the natural process of the market often offers the best and most viable services to customers. While there are major and significant differences between the computer communications industry and others, in this respect it is not completely dissimilar and competition would seem to be a very effective tool for ensuring that the public interest is served. But should it be free for all, with



no holds barred? There are striking differences between some of the present and the potential players in the computer service game. I am sure that the more economically muscular aspirants, such as financial institutions and telecommunications carriers, would not want inadvertently to restrain competition rather than enlarging it. Some rules may be needed, if only to ensure that the spirit of innovation survives and thrives. However, there is no easy answer to the question of how much competition we can afford in the long run if we want to strike a balance between social good and economic development.

We will have to weigh carefully the factors affecting the level of competition in the computer communications service industry; whether or not any organization should be excluded from participation, the extent of regulation (if any) which should be applied to data processing service and the kind of corporate relationships which are appropriate between segments of an organization offering both regulated and unregulated services.

There is, of course, a broad spectrum of choices within each of these considerations. For example, regulation of the data processing industry might mean simple registration for information purposes, with no discretionary power over offering of services, or it might involve licensing, which implies discretionary powers on the part of an agency of government. The problem is made more complex by the fact that decisions relating to the data processing service industry interact with those concerning the communications industry. It is difficult to consider one in isolation from the other.





While only a small proportion of the computers in Canada are equipped with data transmission capabilities, many of the now-evolving data processing systems are becoming more dependent on communications. Data transmission is, of course, only one component of the total services which users of data communications require. No matter how effective the data transmission services are -- how low the cost, or how accurate the transmission -- the heart and soul of the service are the complementary systems concepts, hardware and software. Effective evolution of such total systems demands that data communications capabilities be adapted to the requirements of the systems.

It seems likely that if entrepreneurs are to develop and to offer comprehensive services in response to users' needs, some extension of competition in the data communications field may well be found desirable. It should surely be possible for anyone willing to take risks and undertake major investments in complete computer communications systems to make optimum use of data communications facilities, as of other means to implement their ideas.

There also appears to be an increasing need for exchange and sharing of data among computer systems. There are many ways of doing this, and probably one of the most effective would be interconnection of the computer communications networks within which data exist.

Data communications services do not have all the characteristics of a natural monopoly, although they are provided through the telecommunications networks and the companies responsible for the networks





are treated as monopolies under the law. It would not seem unreasonable to relax some of the restrictions on use of these services for data transmission, to meet the needs of the market place and the demands for new and innovative services. The economic base of our critically important regulated voice and message networks must be protected, but in the long run competition and liberalization of some of the existing tariffs and rules should result in lower cost and better service for everyone, provided there is suitable monitoring of new services by federal and provincial regulatory bodies. Of course, suitable standards for interconnection, and for connection of customer-owned equipment, would have to be established and observed.

In the great Canadian debate on economic sovereignty, which will rage on through the Seventies, we are sure to hear more about the sources of ownership and control of the Canadian computer communications industry. I don't need to tell you that this is an extremely complex matter. One principle on which most of us might agree is that Canada should not concentrate its efforts on developing a new computer mainframe manufacturing industry, with the exception of specialized devices where Canadian manufacturers have certain unique features to offer. A good example is the Keyedit device for data entry and acquisition, which has received good acceptance on world markets and is a tribute to Canadian ability to innovate. Although we will probably have to rely on multi-national corporations for most of our hardware and some other needs, it seems reasonable to encourage a degree of Canadian manufacturing and research and development proportionate to the size of our GNP. We estimate in 1971 that Canada incurred a deficit in the balance of trade on computers



amounting to more than \$100,000,000. We also lagged behind the United States in our use of computers. The value of new installations in the US totalled nearly 0.8 per cent of their gross national product compared to slightly more than 0.4 per cent in Canada. Incidentally, the Japanese government intends to deliberately stimulate the computer communications industry so that, according to a recent OECD forecast, it will account for 6.5 per cent of the Japanese GNP by 1985.

In the future, as computer communications services develop and begin to penetrate into homes, comparisons will be increasingly drawn between this industry and broadcasting, telephone and other enterprises which directly and personally affect Canadians' lives and Canadian society. If such public services become pervasive, there will be inevitably a search for appropriate criteria for their shaping and regulation.

We might ask ourselves, for instance, whether in such a computerized society of the future citizens are likely to regard Canadian ownership and control of computer networks as any less important than that of broadcasting networks, or Canadian ownership and control of each vital element in the computer communications industry as any less vital than that of radio and television stations.

As major users of computers and computer communications services, governments can have a significant influence on the development of the industry. The Federal Government is well aware of this, and has recently completed a study of its internal data processing operations as a basis for new policies which will reflect a recognition of the



new era of which I spoke and a determination to use the Government's power to catalyze the growth of the independent data-processing industry. On the one hand, we will be consolidating our computing centres into larger complexes serving diverse needs. On the other hand, we will meet our needs for electronic data-processing services from the private sector except when it is clearly in the public interest or more economical to provide them internally.

The federal and provincial governments, with the cooperation of the private sector, have to consider very carefully what role each can play in the formulation of Canadian approaches to computer communications. We need to cooperate to ensure the degree and kind of research, development, manufacture and regulation to meet particular Canadian needs. Governments should participate in pilot projects and promote development of full-scale systems to meet social and economic needs. Continuing cooperation will be essential if policies and practices are to be responsive to changing user demands and industry conditions.

I have mentioned tonight what I see as some of the main issues facing us in the computer communications field. There is a wide range of options, and an equally wide spectrum of choices within each. The report of the Canadian Computer Communications Task Force, hopefully, will set them out clearly for us and propose policy approaches for the future. The Task Force process, like the Telecommission before it, has been an open one in which many have participated. I hope many will contribute to the critical analysis of its conclusions, which must take place before we all make decisions -- private and public, provincial and federal -- which will be vital to the development of our industry, our society and our country.





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"THE 20TH CENTURY BELONGS TO THE CHARIOT DRIVER"

An address

by

HON. ROBERT STANBURY, P.C., M.P.

(York-Scarborough)

Minister of Communications

Government of Canada

to the annual conference of the  
International Communication Association

10:30 a.m., April 21, 1972.

Sheraton-Baltimore Hotel

Atlanta, Georgia

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In my country we have a saying: "The 20th century belongs to Canada". That may be a bit of braggadocio, but at least 1973 is Canada's -- our year to host the International Communication Association's 21st annual conference. I hope I will have the opportunity to welcome you all to Montreal next year on behalf of the Government of Canada -- our electorate permitting. It will be an honour for us to have you meet in Canada for the first time.

It is a particular pleasure to be here in Atlanta, where Canada will open its newest consulate in the United States -- our 15th -- this summer.

Communication between our countries at the governmental level is constant. We share many of the same media and we cross our 4,000 miles of undefended border almost at will -- last year 39,000,000 northward and 34,000,000 southward. Within the past few months our two Tourists-in-Chief have exchanged visits. President Nixon was with us in Ottawa just last week. But I think it is fair to say that the average Canadian knows the United States much better than the average American knows Canada. While this is understandable, it seems to me it is in the interests of both to know each other better if we want to serve as examples for the world of nations of disparate populations and power living side by side in peace, prosperity and mutual respect. Our Prime Minister, Pierre Elliott Trudeau, underlined the awkwardness of this relationship when he compared Canada's role in it to that of a mouse which finds itself in bed with an elephant. We hope that the elephant won't roll over too often. (I suppose under other circumstances he might have used a donkey in place of the elephant; the mouse is outweighed in either case.) In such circumstances, communication is crucial to our



comfort if not our survival. So we will welcome a chance to show you a bit of Canada, and perhaps some of you will even decide to stay -- as 23,227 Americans did last year -- and share in what's left of this 20th century of ours.

In reality, the 20th century belongs to those who can drive the chariot of change, rather than panting along or being dragged behind it. That is what we are aiming to do, as all governments must. Change is our business, as it is yours, and I want to share some thoughts with you today about what I think are two of the major trends that have occurred in North America, and to a considerable extent elsewhere, in the 20th century.

The dominant technology for the first half of the century revolved around the automotive industry, and the development of related subsidiary and support industries. The dominant technology for the last half of the century is focused on the communications industries. Fuelled by innovations from the United States defence and space efforts and propelled by the successful commercial applications of television, the result has been the growth of an electronics industry whose presence and pressure affects all levels of human, government, business and educational activities. If there are analogies between the automobile and communications industries then we should be able to draw lessons from the experience of the one and apply them to the other. This I will attempt to do.

Speaking as a layman among experts, I would like also to deal with developing social indicators and measures of effectiveness, and to illustrate these by describing some examples of research being undertaken or promoted by Canada's Department of Communications.



Let us look at the technology developments, the automobile and communications, and consider first what those developing a new technology see as its immediate and future benefits, the bright dream. Take this quotation:

The improvement in city conditions by general adoption of the motor car can hardly be overestimated. Streets clean, dustless, and odorless, with light rubber-tired vehicles moving swiftly and noiselessly over their smooth expanse, would eliminate a greater part of the nervousness, distractions, and strain of modern metropolitan life.

Imagine a healthier race of workingmen, toiling in cheerful and sanitary factories... who, in the late afternoon, glide away in their own comfortable vehicles to their little farms, or homes in the country, or by the sea, twenty or thirty miles distant! They will be healthier, happier, more intelligent and self-respecting citizens, because of the chance to live among the meadows and flowers of the country instead of in crowded city streets.

This was written about the automobile in 1920. Who has been driving the chariot? It makes one wonder whether in the year 2000 someone might dig out a quote from today about the benefits of communications technology and find as great a gap between the hopeful promise and the ultimate reality.

Let me describe in general terms some of the factors that were encountered with the successful introduction of the automobile into the lives of the citizens of the United States and Canada. (Since we share an integrated auto industry, under an agreement of great advantage to both countries, I am not singling out a great American institution.) I won't dwell on the growth of the automotive industry itself. The manufacturers represent only a part of the automotive industry. Rather, one could make a case that it is really the supporting industries from petroleum to automobile insurance, which rely upon the yearly commercial success of the automobile, that are the driving force of expansion.





Given the industry's role as a generator of a healthy GNP, it is striking that we have come to a point where the automobile is no longer sacrosanct. All of you know the charges laid against it: that it is a major polluter of our environment; that it is a weapon of destruction of both property and person; that it is a creator of congestion in the urban core and the freeways. The car is attacked for its apparently planned obsolescence. It has become a status symbol, often purchased for what many regard to be the wrong reasons, although perhaps this is part of the very nature of our society. I need not dwell on the many other liabilities associated with the automobile but rather, for such a learned audience, simply insert a footnote here referring you to Ralph Nader.

But the issue is not, at least for us in government, as simple as decrying the existence of the motor car. One can argue its merits, and there are many, and whether it should or should not be allowed to dominate so much of our lives. The real consequences of the Model T siring 57 varieties of Mustang are less related to the car itself than to the powerful infra-structure that has grown up in unison with the automobile industry. What we have to deal with today is a system of corporations, a system of trade associations, a system of unions, a huge number of shareholders, a host of interest groups, and a virtual army of legal talent affixed to all these organizations. Perhaps when one begins to comprehend both the size and power of these interrelated organizations it is possible to grasp how difficult it is to develop a "public policy"; somewhere along the line the public, the human element, can become lost or at least a bit hazy. These same considerations apply, in many respects, to the complex of communications industries now burgeoning in both our countries.





Do you recall being introduced with pride not long ago (and even seen occasionally on the street today) a chariot known as a Corvair? I wonder who drove it to the showroom? Now, I have no desire to dwell on the merits and defects of this particular car, and not just because it has relatives still in mourning among the distinguished members of your Association. Rather I would like simply to argue by analogy, realizing all the limitations of analogical argumentation.

Today we have what we could describe as a showroom of communications innovations. Somewhere in that showroom of the communications field could be a Corvair. The question that forces itself to our attention is whether we will allow a malfunctioning communications system to be perpetuated upon our people. Are not the consequences of a "bad" communications technology so far-reaching and perhaps so irreversible that we can no longer, as professionals in the field of communications and as laymen with policy-making responsibilities, stand by and let the technology develop by itself, only beginning to assess its impact after it has become a marketable and commercially feasible innovation?

Of course, one might argue that we cannot tell what is functional or disfunctional until after a product or service has been implemented. But surely the crux of the issue is, first, how to define malfunctioning. It can be a purely technical quality, as has been alleged with the Corvair. It can be the direct reverse. Other cars function well; by doing so they achieve heavy market penetration and as a consequence accelerate the second-order problems of pollution and congestion. Malfunctioning, in terms



of social utility, can be the consequence as much of success as of failure. Given these complexities, our second problem is to develop techniques to measure the extent of malfunction. Third, we have to face the problem of how to develop appropriate policies to cope with the defined problems. And as great a challenge is that of exploiting, for the best interests of society, the full potential of technologies, whether of automobiles or of communications.

Going back to the topic of assessment, I agree with Alvin Toffler when frequently he cites the true significance of the SST decision. Here is a recent example of a major technological advance being debated openly and at length by the people who were directly or indirectly affected by it. The debate itself is not of primary significance. (As a politician I realize only too well that debates are not necessarily significant in themselves.) The significance lies in the fact that this debate took place prior to the technology being introduced. The message in simple terms: look before we leap.

Prime Minister Trudeau has suggested that we need to replace the gauge of Gross National Product with one of Net Human Benefit. At this point I am not sure how it will be worked out, but I am sure there is an unmistakable need for prior assessment of technological innovations that can affect social goals, to set the hypnotic effect of the GNP into its proper perspective.

In parallel, we need to develop operational definitions for social goals and methodologies for assessing on-going advanced communications technologies. In any society there are fixed resources, human, economic



and natural. Given fixed or limited resources, we cannot pursue every good and service which comes onto the landscape. We have to be selective. This is particularly true in the field of communications, which is both capital intensive and intensive in its use of human talent. If we can strike but a spark of this innovation in the field of developing social indicators then I think we will have reached a better understanding of the true nature of "progress".

The Committee for Scientific and Technological Policy of the Organization for Economic Cooperation and Development (O.E.C.D.) has addressed this point and in its recently published report made the following observation:

Except for strictly economic criteria, little is as yet known of how to evaluate the social, cultural and economic consequences of a potential technical change. Moreover, the endeavour is hampered by the absence of agreement as to what is desirable or undesirable, as to the tolerance limits of harmful side-effects.

In Canada, our Department of Communications interest in this area is reflected in a series of projects which involve cost-benefit analysis, user-needs analysis and straight behavioral research in a laboratory setting.

One project that may be of some interest to you is a continuing study being carried out for the Department by the University of Montreal into the phenomenon known as "information overload". The basic objective of the study is to examine the fundamental issue of how much information humans can assimilate and cope with, and what are the effects upon human performance of a surplus or overload of information. What is the channel capacity of the human system? How much information can the system encode and decode? What basic units are necessary for "meaningful" information?





The first phase of the study is a conceptual phase, analyzing the writings in the field, commencing with the pioneers Weaver and Shannon, and continuing up to more recent studies that have resulted in the concept of program overload. Following the conceptual phase, the Department of Communications will fund a series of laboratory experiments in order to determine more systematically how both humans and organizations respond to an information overload and in turn what type of physiological and psychological mechanisms humans use to cope with this condition.

A second example of evaluation research deals with conference systems. I have in mind a range of systems, both audio and audio-visual, supplemented if necessary by graphics capability, which could permit two or more groups of physically separated participants to exchange ideas, opinions and information with most, if not all, the benefits to be derived from direct, personal encounters.

At present, there are general operational teleconferencing systems in Britain directly under the auspices of the British Post Office; in the United States, two New York banks run their own internal teleconferencing systems, and Bell Canada has recently opened a conference link between Montreal and Toronto.

Our studies are directed, in part, to examining the cost/benefit and user needs aspects of such systems, in order to determine their usefulness for such a purpose as, for example, improving group communication between physically separated offices of the same government department. But the area of study that perhaps would be of most interest to you is a proposed series of behavioral experiments that will test out, in teleconference conditions, the theories and findings of small-group studies. If the hypothesis of a fellow countryman of mine is correct, the medium may be the message,





at least to the extent that small-group behavior changes radically with different types of teleconference systems. At present, discussions are taking place between my Department and the Communication Studies Group at the University College of London, which has done a great deal of work in the teleconference area. We are very hopeful that avenues of cooperation can be developed so that each team can study different aspects of the same field. This type of experimentation and cooperation will probably increase as teleconferencing grows.

A third departmental area of inquiry also deals with developing effectiveness measurements. Our field of concern here is northern Canada. About 200,000 people in the Canadian North need either new or improved communications. A particular aspect of the problem is that a large proportion of this population is native, with distinct cultural and social needs. A major program to meet northern communication needs is being undertaken by Telesat Canada, a mixed public-private corporation which late this year will launch its Anik communications satellite, to give Canada the first domestic system in geostationary orbit, Anik (Eskimo for "brother") will go a long way toward meeting a variety of needs but will not, at least at the outset, penetrate all the isolated communities of the North, nor will it fulfil all of the social and cultural needs to which I referred.

My Department has established a Northern Pilot Project Program which will install and monitor the operation of a variety of experimental communications systems -- VTR, HF radio-telephone low-cost community broadcasting -- in remote communities.



One such system, called Comminterphone, has been installed at Rankin Inlet, a small community on Hudson Bay. Comminterphone is a unique experiment involving the Department of Communications, the Canadian Broadcasting Corporation, Bell Canada and Bell-Northern Research. What they have done essentially is to connect a telephone conference call system with an unattended radio broadcast station so that if a person wishes to be heard on the radio in the village all he has to do is dial a certain number and he or she then has access to the radio network. Up to four people can converse simultaneously; they can, of course, also use the system to broadcast music. The only controls on the uses to which the system is put are those that the local people establish themselves. Ninety-two per cent of the language spoken over this system is Eskimo. This fact caught my eye because while 90% of the community is Eskimo, its language for most purposes -- administrative, commercial -- is English. These statistics are drawn from a report which constitutes a monitoring of the performance of the project and an evaluation of its effectiveness, undertaken for the Department by the University of Saskatchewan's Institute of Northern Studies.

A fourth program is that of a Citizens' Communications working group under the joint sponsorship of my Department, the Secretary of State (responsible for cultural affairs) and the National Film Board. The purpose of this group is to examine ways by which the Government might encourage citizens' groups, native associations and local organizations to make effective use of new technology to promote community development, citizen participation, and self-expression.



Motivating the creation of this working group are the twin facts that there has taken place, roughly simultaneously, a dramatic decrease in the cost of communications equipment (such as VTR) and in the complexity of such equipment, and on the other hand an equally dramatic increase in the desire and ability of citizens' groups to use this new technology for their own ends, whether to make a social or political statement or just to record their children playing peewee hockey. Just how deep into the community the use of this equipment goes can be debated: detractors claim that most of those who use the new media are an elitist group. But interest has been clearly shown by many economically under-privileged groups, for example, in learning the new techniques and using them as tools for social change. It is evident that so-called "mini-communications" systems are acquiring a much larger role and are becoming, at least potentially, a social force.

The objective of the Citizens' Communications working group, being mission oriented, is different in nature from those of the other programs I mentioned. I cite it, though, as an example of an attempt to come to terms with a distinct technological trend towards "mini-communications"-- and then to analyze what that trend might mean in terms of desirable government policies.

From all I have said, you will recognize that I am sensitive to the high cost of mistakes in communications technology. This is particularly true in one application area of direct interest to you -- that of education. The Department of Communications has for some months been studying the possibility of developing a program of research into educational technology





in close cooperation with and in direct response to the needs of the Canadian provinces who are responsible for education. Such a program, if it is to be worth anything, will have to start from a clear definition of user needs. This is another way of saying that any technology applied to education must serve the needs of education, not those of technology. Too often in the past the opposite has been true, and many of our schools and colleges are overloaded with expensive audio-visual equipment that is often unused, and as often misused. We hope to help our educators make the most effective use of their -- and our -- limited resources.

That is a brief and superficial summary of some of my Department's activities in areas that may interest you. Questions aplenty remain, among them these:

First, how do we proceed to develop social indicators that are an accurate reflection of our value systems -- value systems that are themselves, of course, subject to change. Tied to this is the related problem of developing effectiveness or efficiency measurement devices that will give us some type of yardstick by which we can measure whether our social indicators are going up or down.

Second, how best can government work effectively with private industry, particularly large complexes of industry, to promote that necessarily ill-defined objective, "the public interest". In the communications field, at least in Canada, we face a dual problem. On the one hand, we have to be aware of the pervasive influence of economies of scale where the giants become larger and the smaller become absorbed. For





example, a year ago when your organization met in Phoenix I could have talked about IBM and the seven dwarfs. But between last April and this, the seven dwarfs have been reduced to five since General Electric and RCA have for all practical purposes pulled out of the computer field. It will be interesting to see how many will be left next April when your group assembles in Montreal.

At the same time in Canada, with our small population and market, we sometimes have to encourage rationalization and merging of marginal markets so that one company can survive profitably. It is a difficult tightrope to walk, one day discouraging companies and mergers and spurring competition, another day encouraging others to merge or co-operate.

If the role of government which I have been describing were well executed -- and that is a large if, for it is easier to preach than to practice and easier to diagnose than to cure -- then government could have a substantial positive impact on technological development in the future. The citizen will be at the reins of the chariot.

It is clear that we are citizens of a technological era; that we are moving quickly into a post-industrial society where the assembly-line is no longer the dominating force, into a service-oriented economy. This does not mean that everything -- value systems, human behavior -- will change, but it certainly does mean that there will be a great many second-order changes in the social, cultural, political and economic environments surrounding us.



I realize that in the audience there is a great deal of expertise in the field of interpersonal communication. One of the quantum shifts that we have seen in interpersonal communication across generations is the nature of information that people now communicate about. Much of our day-to-day conversation revolves around issues of which we have been made aware because of the advanced development of the communications industry. It used to be that information was limited to fairly few sources: mostly books contained in libraries of various sizes. Today with radio, television, computers and films, virtually unlimited information is available to almost anyone who wants to obtain it. Yet it is the qualitative level of ideas and information in interpersonal communication that must play a significant role in the planning of communications policy. We somehow have to devise a framework that will permit innovation in the communications industry to be responsive to input from the people about their needs. The ultimate challenge is the control and use of communications technology, and it is not only crucial to the type of information to which individuals have access, but it is central also to the process of governing a society.

Thank you for the privilege of addressing your 20th annual conference. I look forward to seeing you at your 21st in Montreal, Quebec, our most important Canadian city after my own of Toronto. I am sure that many of you are familiar with Montreal thanks to Expo '67, and some of you more so thanks to that great Canadian game, baseball. I promise you, you haven't experienced culture shock until you watch the Montreal Expos play at home, and hear the game called in French.





Deputy Minister  
Communications Canada

Sous-ministre  
Communications Canada

SPECIAL IMPLICATIONS OF THE NEW TECHNOLOGY

Notes for a speech

by

Allan Gotlieb

Deputy Minister of Communications

OTTAWA CANADA

at the

International Broadcast Institute

AMSTERDAM

May 15, 1972

FOR IMMEDIATE RELEASE



Almost two years ago the International Broadcast Institute, at its Ditchely Park Symposium, addressed itself to the problems raised by the social implications of the new communications technology. I am honoured to be invited to your meeting here to speak to you on this subject as it relates to work and studies underway in Canada. We have in Canada begun, and it is barely more than a beginning, to consider, and to try to get some measure of, the impact of communications technology upon society at large, to predict what that impact might be, beneficial or detrimental, and then to work from these findings toward the planning of specific systems. In short, to define the consequences and to take advantage of the challenges created by the technology.

In Canada, our attempt to define the consequences and to identify ways to exploit the challenges, began some two and a half-years ago with an inquiry called the Telecommission, which resulted in the publication a year ago of a report titled Instant World and in the publication of some 50 separate detailed studies of all aspects of telecommunications. I am particularly pleased that the work of the Telecommission should have caught the attention of the Institute. My colleague, Mr. Hindley, will be giving a more detailed account of that undertaking. I intend to use the occasion you have provided me to try and place the work of the Telecommission in context, and to then move onto a broader analysis of the subject of this morning's discussion.

The context of the Telecommission was, of course, communications. But it was also that of communications in Canada. At the risk of being chauvinist, I believe that Canadians have a natural familiarity with and under-







standing of the importance of communications. Given our geography which in terms of concentrations of populations resembles an elongated sausage, - a 3,000 mile sausage, given our diversity, comprising not only French and English-speaking people, but also regional differences, differences, given these relatively obvious facts, it is apparent that as a country we live or die by communications. In our early days that communication was physical: people and goods moved by rail along the Canadian Pacific Railway; today that communication is electronic: information and ideas are moved by microwave, by cable, by telephone wires. It was not just an historical accident that the first long-distance telephone call was made in Canada; it is not just contemporary accident that the world's first domestic communications satellite, Anik, will be in orbit late this year and in operation by Telesat Canada early next year; and that in 1975 we will be launching the experimental Communications Technology Satellite, the first of its kind, a high-power satellite which will be able to transmit and receive signals from inexpensive, two-way ground terminals. Three other non-coincidences will make my point: that the great achievement of the 1967 World's Fair in Montreal should have been the split-screen and multiple-image innovations of Expo; that Marshall McLuhan should be one of a limited number of Canadians to make a mark on the world scene; and that, finally, an imaginative, and now widely-copied, technique for using film and video-tape as an instrument for social and community development, the Fogo Process, should have been developed in the Canadian province of Newfoundland.

Forgive that litany, with its overtones of self-congratulation. I gave it, and in fact the list could be extended considerably, to convey the



extent to which communication has always been, and is even more strongly so today, an essential part of the Canadian experience. As the Canadian writer, Neil Compton, has put it: "The characteristic virtues of our native tradition - the recognition of human limitation, the awareness of ambiguity, and the urge to communicate - are those which the age seems to demand." We do not expect communications, however abundant or sophisticated, to remake our society; we do hope that they will widen our range of choices, by widening our knowledge of them; that they will make it easier for individuals and groups to exchange ideas and impressions and hence gain in understanding though not, as an automatic corollary, in amicability; and, finally, that communications particularly through the medium of broadcasting, will add to our range of entertainment and education.

All of this adds up to a measured view of what communications, suitably deployed and sensibly regulated, can offer us. Much more recently we have become aware of and have begun to address ourselves to a problem in communications with which we have no greater familiarity than anyone else. This problem is the subject of this Conference: the special implications of the new technology. The issue itself is highly ill-defined, in large part little known and in some parts quite unknown, yet its essence can, I think, be expressed quite simply. We fear, or suspect that communications technology is becoming too powerful for us, that it rather than ourselves and our institutions is dictating the shape of the future.



This concern about who is leading whom struck me when I was reading the summary report of the Ditchely Symposium in the IBI Newsletter and came upon a sentence which quoted one of the speakers of the Symposium as having, and I quote, "stressed the need for institutional innovation to match new developments in communications". That sentence, which flatly declared that institutions should re-organize themselves to meet the needs of communications systems, reminded me of the comment of Jacques Ellul, "The judicial regime is simply not adapted to technical civilization. It has not registered the essential transformation of our times." Ellul there stated darkly that our present institutions had not changed, and by implication conveyed his doubt that they could change. Both Ellul and the Symposium speaker took it for granted that it was institutions, not technology, which had to change.

The truth of those observations is born out by Canadian experience. We have developed, at some considerable expense, national radio and television networks, both English and French, both public and private. The viability of those networks is now being seriously affected by the technological development of cable-television systems which today deliver up to twelve channels to about one-quarter of all Canadian homes and which in the future will deliver 20,30 and even more channels to perhaps more than two-thirds of the Canadian population. This multiplication of television channels fragments audiences and the economic base of conventional over-the-air, television. It also brings with it a critical circumstance for Canada, a massive increase in the volume of foreign programming which in turns helps to shape our cultural and social outlook.





Cable-television, with its half-sisters, closed-circuit television and Pay-TV (the latter not yet a commercial proposition but likely to be so in the very near future) has imposed or is likely to impose a whole new range of burdens upon those authorities responsible for the regulation and the development of Canadian broadcasting. One need be neither a seer nor a futurist to recognize that those problems will not lessen, but intensify. Direct broadcast satellites, which as a transmission device can obliterate national boundaries, are perhaps a decade away. Video-cassettes, which will permit each viewer to watch the programs he has chosen at the times he has chosen - including, inevitably, pornography - are much nearer to hand: video cassettes will become a general consumer item in probably five years or less, assuming that the problems of high cost and compatibility are resolved. And to come down to today, the so-called Port-a-Pack 1/2-inch video-tape revolution, which has brought the price and ease of operation of video cameras and playback machines almost to the level of everyman, has catalyzed, certainly in Canada, the production of vast quantities of programs. These programs resemble conventional television programs in shape and form but are rarely if ever broadcast over the established system to compete with it, at least in terms of viewers' attention, if not in a commercial sense.

From this choice of communications devices and systems, at least in the audio-visual field, two issues seem to push themselves forward for consideration by policy-makers and students of communications. The first is that impending or actual super-abundance of recording, transmission





and replay systems constitutes a powerful force in the direction of decentralization. This decentralizing tendency, if valid, itself leads on to the creation of two separate issues. First, control, in order to achieve specified national social, political and cultural goals, becomes far more difficult if a system comprising, say, a single, publicly-owned broadcasting system is progressively replaced or swamped by a multiplicity of communications devices. The problem of cultural invasion also becomes much more intense, unless compensatory steps are taken and I will come back to these in a moment. Second, while the concept of each individual watching only the programs he wishes sounds attractive, some of its implications may not be: too much communication can lead to social fragmentation as the number of shared experiences and the amount of shared information provided by a system common to all, dwindles.

The second issue forced to the surface by the super-abundance of communications channels derives from the fact that this condition has been created by hardware, often by the salesmen of hardware, and because it is this hardware which is dictating the terms for software. Certainly so far as Canada is concerned spending on hardware is beginning to provide the incentive for greatly-increased spending on software. The Anik satellite system, for instance, not only makes possible the delivery, for the first time, of live television in the north but by so doing is making possible the development of plans for northern-originated programming. In Toronto, to give another example, we will have shortly no less than five local



television stations, all producing Canadian programming, where only a few years ago there were only two stations.

Nevertheless, what is true beyond doubt in my own mind is that far too often we have let hardware take the lead, allowed the technology to establish the rules of the game as it were, and then almost literally scrambled to develop software. Video-cassettes, for example, will open up a vast new program market. So far as Canada is concerned it is quite possible that this market will be dominated by, inundated by in fact, imported programs, unless we take steps to take advantage of the opportunities created by these technological developments.

The Canadian government has under active review the development of policy proposals to provide a coordinated overview of communications in all its facets. In seeking to draw conclusions from this general analysis I am constrained by the fact that all I should do, therefore, is to make some personal observations. It seems to me that the condition of audio-visual channel abundance is going to require of governments a new and flexible response. Over the long-term, traditional concepts of administration and of control may have to be modified and reliance placed increasingly upon incentives and encouragement of various kinds in order to promote the production of the particular types of programs that are necessary for national social and cultural well-being. This could mean subsidization of programmes and production bonuses rather than the subsidization of installations which distribute those programs. At the same time public authorities, I believe, are going to have to develop much more sensitive and effective instruments for predicting and measuring the social implications of all this technology.



Governments need to know, or to have some idea whether, the net impact will be that of homogenization as has so often been predicted as a consequence of satellites and of world inter-connection of communications systems, or whether the impact, particularly of multi-channel cable systems and video-cassettes and VTR, may not be the direct opposite, namely that of social fragmentation, not a global village but rather hundreds of thousands of villages, each watching their own programs, doing their own thing unconnected with or uncommunicating with, each other.

In the Department of Communications we have, during the past year, initiated a number of studies into the broad field of the social impact of communications technology. Our efforts are fragile: we have barely reached the stage of learning how to define the right questions. So that you may have some idea of the directions of our studies, I will itemize the more important of them.

-- Privacy and Data Banks. This has been a major study, conducted jointly with the Department of Justice, to identify the extent to which new highly-efficient, computerized data banks may invade personal privacy, and to identify also appropriate safeguards to protect individuals. This study is all but completed and should be submitted to the Government in June. Specific action will depend upon the nature of the report and upon the outcome of the government's own consideration of it.





One general line of thinking that has emerged during the inquiry is that the privacy issue consists of some rather distinct issues. One is that of the classic type of invasion of personal privacy, much like trespass, for instance, transferred to the context of highly efficient computerized information systems. A second issue concerns the accuracy and relevancy of information gathered about the individual, rather than his privacy per se. Yet another is that information systems, quite aside from whether or not they invade privacy, concentrate power in the hands of the operators of data banks, both corporate and governmental and of those who manage the information. There are fears that such data banks may create an imbalance of power in the relationship between individuals and institutions. Privacy here becomes a synonym, a symbol, for a cluster of public grievances which, even if they are poorly articulated, must be listened to by those in authority because they may be symptoms of a social malaise, or unease.

-- Information Overload. The first phase, a conceptual study of the phenomenon of information overload and of the social and psychological dysfunctions that it may induce, has been completed. The second, a laboratory phase to test out preliminary hypotheses, will be initiated shortly.

This study is just breaking ground but one interesting, and possibly significant, line of inquiry is the hypothesis that information overload cannot be understood and therefore measured in the classic terms of channel capacity (once this channel is filled a human suffers overload), but rather that the human information system is far more complex, and that what seems to be taking place is 'program overload' - too many signals competing with one another for attention.





-- Northern Pilot Project. The aim of this project is to install in remote communities, principally those in which the residents are Indians or Eskimos, a variety of communications systems (high frequency radio-telephones, VTR; community radio broadcasting) in order to determine the effectiveness of these systems in meeting the needs of residents. A great deal of our effort will be directed to the evaluation process, that is, towards the definition of appropriate indicators of success or failure and the collection of the necessary data. The first evaluation report, on a system installed in the Arctic Eskimo settlement of Rankin Inlet, has just been completed.

In the report are statistics which caught my eye and which may be a measure of the success of the experimental communications system. The population of Rankin is 90 per cent Eskimo; the proportion of Eskimo used on the system was 92 per cent - rare indeed for any communications system in the north which is designed, as this one was, in the south.

-- Teleconference Project. In parallel with the pioneering work done by the Communications Studies Group at London University we plan to build, and to then evaluate, a range of teleconference systems, both audio and audio-visual, and supplemented when the need arises by graphics. Such systems, if they can be justified by cost/benefit analysis, could be of great importance in a country such as Canada with a widely-dispersed population and widely-dispersed government and administrative structures.



With the exception of the privacy report, all these studies are in a preliminary stage. Some will require at least two years before any substantive results are in. Some may, perhaps never "be completed" in the sense that one can, gratefully, close a file and move on to another problem. The privacy study for example, records and analyses the situation as it was in 1971 when the data was collected. It discusses the possibility of coming to terms with such future problems as those that will be created by the ever-increasing power of computerized systems to store vast quantities of information, to change or manipulate this data, to merge separate files, to decentralize information and therefore to centralize decision-making. Such issues may be susceptible of analyses and sometimes, perhaps, of solutions. But solutions themselves, if we may, at times, call them that, indicate new factors to assess in a process of changing social conditions and relationships between man and society.

Another problem area which technology is creating concerns that of the impact of new communications systems upon our laws of copyright and of intellectual rights. In the field of satellites, for example, the international legal community is now taking up the question of the protection of satellite transmissions against their unauthorized interception and possible retransmission - in short, against "poaching". A very recent conference in Paris sponsored by UNESCO and the World Intellectual Property Organization (WIPO) has proposed a draft international convention on this subject to which Canada will be giving very serious consideration. As



regards computers, attention is being given to the entire question of rights - including the possibilities of patents and copyrights - in computer programs and related software. While the international level is the appropriate one for attempting to adopt acceptable principles, we must not deceive ourselves in thinking that solutions will be easy to find. In areas where new interests arise, old ones remain and all may be transformed by technological changes.

The idea of continuous monitoring or searching for solutions has a rather strange ring to it. Yet it is, I expect, a concept which public authorities will have to become accustomed to, as will the public which has, to a degree, been conditioned to believe that to every problem there is an immediate solution. The rapid, not to say incessant, pace of technological change is going to compel us to operate at two quite separate levels. The first level will be the level of the day-to-day and the immediate. The operation of current systems cannot be disrupted by endless theorizing, endless research, endless studies about what might be, but also, inevitably, about some things that will never be. At the same time we are going to have to develop a capability for continuous research and evaluation, not of studies done in a vacuum and removed from reality, but of studies which when they produce results can be introduced or injected such into the process of decision-making. As Peter Drucker has commented, "Planning is not about future decisions; it is about the futurity of present decisions."



The story of the automobile is familiar to all of us. It has brought us many benefits: mass, cheap, transportation; enormous gains in economic efficiency and in personal comfort and enjoyment. The automobile has also brought us pollution, congestion, noise, and the destruction or degradation of the core of many of our cities. None of these effects were intended; were unavoidable. To have avoided them required continuous monitoring of the social implications of mass automobile transportation, a capability by public authorities to accept the validity of predictions about some of the social dysfunctions of automobiles and the courage to act upon that knowledge. In the past the capability was lacking. The same challenges apply to communications technology. Let's hope that the ability to cope will not be lacking again.

In Canada we have not got very far down the road of knowing how to forecast and to assess the social implications of the new technology. We are really taking only the first steps. At this stage we can benefit greatly from the contribution of bodies such as the International Broadcast Institute, from the knowledge and expertise of others. I thank you for the opportunity to describe some of the work in this field and the concepts behind that work, as they concern Canada. I look forward with great interest to hearing your views and to learning about your experiences.









SOME ASPECTS OF COMMUNICATIONS  
IN THE NEXT TEN YEARS

NOTES FOR A SPEECH

BY

ALLAN E GOTLIEB

Deputy Minister of Communications

to the

CANADIAN COMPUTER CONFERENCE SESSION 72

Canadian Information Processing Society

June 1 1972

Montreal P.Q.

FOR RELEASE AT 11.00 A.M., THURSDAY, JUNE 1st, 1972



During the last few years we have ceased to regard the computer as a fantastically efficient calculating machine working in isolation from our everyday life. Through remote terminals and communications links it provides a wide range of services closely integrated into our business and professional lives, and we all know that this functional expansion of the services based on computer technology is only just beginning. It is widely believed that computer services will come to demand special communications systems and equipment - for example, the I.T.U. has initiated a study of the need for special communications networks and of their desirable special characteristics. I am pleased that your Society responded positively to my invitation to join in the discussions we are leading of the appropriate Canadian contribution to this I.T.U. effort.

The anticipated expansion in computer services will depend critically upon your profession and your ability to identify new computing and information services which have potential for improving the quality and efficiency of our social and professional life. It is my intention to remind you of the revolution which is taking place in the communications field. However, I do not think that the coming explosive growth of computer services can be led by communications development. The communications technology will be found - much of it already exists - but the lead will come from the introduction of new computer services, and the nature of these new services has already been widely discussed. In the literature of the so-called wired city well over a hundred potential services dependent upon computer



technology have been catalogued. We are in a period of comparative calm which is highly charged with uncertainty both for the industry and for the policy-maker. We have been told of new ways of conducting our daily lives, of push-button access to vast stores of information - yet it is not easy to foretell which of the possible new services having wide public impact will emerge first.

I will deal with the new technological developments in communications under the headings of transmission systems and the introduction of full digital operation. The new transmission systems which are either already with us in some form or are clearly visible are:

- high capacity cable systems
- waveguide systems
- guided optical systems
- satellite communication relays.

These fall into two definite classes. On the one hand, the first 3 are essentially high capacity point-to-point communication techniques which I shall discuss first. On the other hand we have satellite communications with an inherent flexibility as its chief characteristic which I shall discuss later.

The first of the new point-to-point systems, the coaxial cable, is one that is with us now and is expected to be extensively applied in the next decade. Development of long haul cable systems began about 10 years ago. At the present time, the first section of a high capacity cable which will link the industrial centres of Quebec and Ontario is



being installed by the Bell Telephone Company. Initially this cable will operate between Ottawa and Montreal. I understand that the plans are to extend the cable to Toronto by 1976 and by 1980, to include London, Ontario and Quebec city.

This system, designated the LD4, will carry communication traffic in digital form using pulse code modulation at the impressive rate of 273 megabits per second. It is one of the world's first long haul digital cable systems to operate at such high rates and will provide a capacity of more than 20,000 2-way telephone circuits.

The cable itself consists of 12 tubes in a sheath which is nearly 3 inches in diameter. It is quoted as costing about \$10.00 per foot to manufacture. The digital signal is regenerated by repeaters spaced at about 6,000 foot intervals along the entire length of the line. Installation is underground in ducts in built up areas and in filled trenches elsewhere.

You can see that the cost of such a system is enormous and it is only when traffic volumes are high enough to utilize the full potential of the high capacity that it can become economical. Such traffic volumes are only generated between major industrial centres located fairly close to each other. In our country this means that communications requirements arising only in the areas centred around Toronto and Montreal will likely warrant consideration of such high capacity point-to-point techniques in the next decade. This fact is given recognition by Bell Canada's plans.

Somewhat further downstream are waveguide systems and





guided optical systems. Waveguide systems are the most advanced at this stage, with development being pursued rather more vigorously in Europe. Experiments have shown that waveguide systems are technically feasible and plans for field trials are in progress in England. Some of the special problems are concerned with the need for mechanical accuracy and stability. This greatly increases the cost of installation. To prevent deterioration of the signal, it is necessary to plan the routing so as to limit departures from a straight line and to provide repeaters spaced at 6 - 12 mile intervals.

The pay-off comes, of course, when the potential capacity is fully used. Waveguide systems offer capacities up to the equivalent of 400,000 telephone circuits. Since this is far greater than any projected Canadian long-haul requirements, I do not expect that waveguide systems will become attractive for widespread application in Canada for some time to come.

Optical fibre guided systems are in a considerably earlier stage of development and much yet remains to be done to establish feasibility. Not only is a fibre with low loss required, but laser repeaters with a performance and reliability commensurate with a practical system have yet to be demonstrated.

Rapid strides are being made, however. There has been a recent report of a liquid-core fibre with an appropriately low loss. Other necessary breakthroughs in laser repeaters, modulators, and coupling devices will undoubtedly be made. It is worthwhile to pursue research and advanced development in this technique because of



installation problems being less severe than with waveguide and capital costs showing promise of being lower. A bundle of optical fibres providing a capacity for about 150,000 telephone circuits is only about 10 millimeters in diameter. Bell/Northern Research and the Department's Communications Research Centre are collaborating in a research project in fibre optic communications.

For very high capacity point-to-point requirements in Canada, it appears to me that coaxial cable systems can meet the need for some time to come. By the time the need arises for capacity greater than that offered by cable, - and that is at least 10 years in the future - it may well be that optical fibre system development will have leap-frogged the development of waveguide systems. If this is so, it would offer a more appropriate capacity at a more palatable capital cost, perhaps even competitive with the lower capacity cable.

Now I propose to leave terrestrial point-to-point communications techniques and discuss satellite communications, whose chief characteristic as I mentioned earlier is its inherent flexibility. It is this flexibility, and the fact that the cost of satellite circuits is substantially independent of ground distance, that makes this a most appropriate technological breakthrough for Canadian conditions. By flexibility I mean the potential for providing any required level of communication capacity at any point within the country. We have, of course, some distance to go in system development to achieve this flexibility in practice and it is not to be expected that the full domestic requirement will be met with any one single satellite system. I do, however, foresee



that domestically we are only at the beginning of the satellite communication era.

Within 10 years we can expect to see the capacity of satellites increasing vastly, accompanied by some rather startling economies of scale. The development of the first generation Canadian domestic satellite, the Telesat Corporation's ANIK, is proceeding on time and within the estimated budget, and when launched in November will provide operational capacity of TV channels or 9600 voice circuits. This satellite system reflects the most advanced characteristics in the current generation of satellites and will be well matched to the Canadian requirement during the years to come. The demand will grow in Canada as elsewhere, and in due course we shall undoubtedly see the development of satellites that have capacities of 20 to 40 TV channels, or up to 100,000 voice circuits. Discussions have been taking place in Intelsat covering the utilization of INTELSAT V type satellites with such capacity.

The economies of scale inherent in these technological forecasts become evident when we examine some cost predictions made at the Symposium on Long Term Prospects for Satellite Communications last June in Genoa. In 1965 the capital cost of an INTELSAT satellite and its launch vehicle per 2-way telephone channel was estimated to be over \$14,000. By 1969, this had dropped to \$4,600 per channel and when INTELSAT IV provides the backbone service the cost is predicted to drop to \$330 per channel. Full exploitation of the available technology in a future possible INTELSAT V system would further reduce the per channel cost to \$110.

To those advantages of sharply-decreasing capital cost must





be added an increase in the efficiency with which the satellite capacity will be used. In the next generation of systems we shall really begin to see satellite communications break free from the point-to-point restrictions of the early systems. Demand assignment will be achieved through centralized system control, exercised through multiple antenna beams and circuit switching in the satellite.

One does not have to ponder these projections for long to realize why 8 U.S. companies have filed proposals with the FCC to establish U.S. domestic communications satellite systems. Were all of these proposals to be implemented there could be within the next few years 20 U.S. domestic satellites in orbit. An indication of the communications capacity represented by these North American domestic proposals may be seen in the total of over 500 transponders which could be in orbit, each capable of the equivalent of one TV transmission channel.

Such large scale space system concepts clearly indicate the importance of flexibility for multi-purpose services ranging from TV distribution to telephone circuits, as well as digital data, including information systems. It is also worth noting that the U.S. domestic proposals in particular are linked to some imaginative concepts for new services.

Clearly the multi-purpose satellites of the future must escape from the restraints of sharing the same frequency bands with terrestrial services as is the case today with 4 and 6 GHz systems, whose ground stations must be located away from terrestrial microwave





systems in urban centres. To enable future ground stations to be located where a variety of users want them, for example on the roofs of urban telephone exchanges, means that they must be small and inexpensive. This means optimizing the trade-off between the power radiated by the satellite and the size, complexity and cost of the ground terminals. This in turn requires taking advantage of the new space frequency allocations, for example at 12 GHz, which need not necessarily be shared with other services.

Thus we see the future satellite as operating at high power levels, with transponders which can be switched in the satellite between narrow beams so as to effectively move the capacity of the satellite across the vast Canadian geography as changes in traffic patterns demand.

However this concept of high power satellites, requiring large arrays to gather solar energy and providing multiple accurately pointed antenna beams will place demands on the satellite itself exceeding the capabilities of the current spin stabilized satellite. This will force the satellite designers to consider the advantages of the new technology of 3 axis-stabilized satellites.

It is for these reasons that the Canadian Technology Satellite, being developed jointly by Canada and NASA, and to be constructed at my department's Communications Research Centre, is such an exciting experiment. Within the limits of the launch capability of the vehicle which is the principal contribution by NASA to the project, we have tried to incorporate as many as possible of the sub-systems representative of the next generation technology.



In order to accommodate large solar arrays, which can be unfurled after launch and maintained pointing towards the sun, the attitude of the satellite will be controlled about three axes. A high-power transmitter tube at 12 GHz will offer scope for the exploitation of small ground terminals for a variety of applications experiments. The CTS is not of course a model of an operational satellite, but through it we hope to increase opportunities for Canadian industry to provide systems or sub-systems for satellites for both domestic and international service.

I think it is more significant to your concerns to consider the effect of the general adoption of digital transmission. At present data traffic is a very small percentage of the total traffic handled in the communication network, and we resort in general to disguising it as analogue telephone traffic in order to allow it to use the switched network. Consequently, it is subject to the constraints of circuit switching and generally makes inefficient use of the communication circuit capacity. The telephone industry is already aware of the advantages of handling speech traffic in digital form, and in the long run the goal is to have digital transmission and switching facilities integrating all kinds of traffic in one system. The reasons for this are, of course, that digital transmission and especially digital switching, which lean heavily on microelectronics circuit technology, have a greater potential for cost reduction than analog systems by advances in technology. In addition, digital methods offer substantial improvements in transmission quality and stability. On the way, however, to this achievement of an all digital integrated system we can look forward to an extended era of interim



methods of handling data traffic, such as the use of store and forward or packet operation, of traffic concentrators, and of various modems.

I think your interest in the implementation of this particular technology - the adoption of digital working and time division switching - cannot be over-stated. A TCTS analysis has shown that on a bit count basis data systems now provide only 0.1% of the total long distance traffic, but that the cost of disguising data traffic as telephone traffic is reflected in the fact that its share of the revenue is about 4 per cent. Forward projections of long distance data traffic are obviously hazardous to make. However, the TCTS analysis already referred to sees a growth by 1980 to 0.3% yielding as much as 17% of the revenues. You will, therefore, look forward to the end of the era of the modem and analogue circuit switching.

The most certain way to bring about the introduction of those items of new communications technology which will be most beneficial to your industry will be to increase the data traffic to the point where it begins to be the dominant consideration in system design and innovation. As I said at the beginning, it is unlikely that the present rate of increase - satisfactory as this may seem in some ways - will achieve this. The key is in the development of new services with broad social and commercial appeal. It is this challenge to which you must address yourselves - applying in new ways both the computer and communication technologies which are already largely available and waiting to be employed.







Minister  
Communications Canada

Ministre  
Communications Canada

## FOUR FACETS OF CHALLENGE IN CANADIAN COMMUNICATIONS

Notes for a speech by

HON. ROBERT STANBURY, P.C., M.P.  
(York-Scarborough)

Minister of Communications

at the

FIRST ANNUAL MEETING OF THE  
CANADIAN TELECOMMUNICATIONS CARRIERS ASSOCIATION

12.30 p.m., Monday, June 12, 1972.

Nova Scotian Hotel  
Halifax, Nova Scotia



On this occasion of the first annual meeting of the new Canadian Telecommunications Carriers Association, I am honoured to be included in your company. The creation of this Association comes on the heels of growing recognition by the federal and provincial governments of the importance of communications in our society, a recognition that finds visibility in the form of new departments and other centers of government responsibility. And because you represent such a mixed bag of corporate structures, a diversity of ownership patterns probably unequalled in the telecommunications of any other country, it is all the more to your credit that you have been able to agree on the formation and terms of reference of an organization embracing you all.

I certainly look at this development with more than passing interest, as well as respect, for I expect it will be a forum for helping to solve difficult issues of Canadian telecommunications. You would hasten to acknowledge, I am sure, that there are distinct limits to your problem-solving capability, especially when competitive commercial matters are in play. However, better that there be an association representative of all interests and capable of resolving some at least of the issues, rather than none at all. I am sure you will seek out the means to achieve fruitful results.

Telecommunications are changing. The post-war transmission and network-dominated expansion period is giving way to the gadget-dominated 70s and 80s. I say "gadget", but within this term I am including items of hardware large and small, from computers to new style telephone



sets, from sophisticated terminal switches to small visual displays. This is not to say that there will be no more substantial developments in the transmission and network switching field; indeed there will, but the intriguing ways in which that capacity can be used seem increasingly to be occupying our attention. Overlaying all of this are the preoccupations of those who fear that technology is dictating what society needs, and in many cases they do not like what they see; of those who believe that the maximum benefit technology could render to business is somehow not being realized; of those who only want simple service at low cost, of those who have grand designs to use communications for supporting a particular segment of Canadian life, and so on.

This is the complex context in which a Telecommunications Carriers Association and a Department of Communications find themselves. Our own particular mission quite simply is to promote, at the federal level, orderly development in telecommunications and to do all those things appropriate to government that contribute to that objective. Many of you have been active with us in our study period, the highlight of which was the Telecommission. It has pointed up issues but offered no solutions. I hope that the issues it identified will provide inspiration for your Association and some guidance on matters to which your attention might be directed. What are needed above all are pragmatic solutions. It is just that type of result that an association such as yours is capable of producing, and that a department such as ours is seeking.

In your daily work you have to deal with many interests, the cable TV operators, the computer industry, the broadcasters, the hydro



utilities, to name just a few. These industries have their associations too and the achievement of your objectives as well as theirs might be facilitated by direct negotiations, consultations and discussions between your associations, as well as with government and among yourselves.

We in the federal government have the greatest self-interest in your success. I think we have achieved a good understanding of the size and shape of the task ahead of your industry and of the resources at your command. What we are only now evolving is the philosophical framework for the optimum government-industry relationship and interaction. We are not alone in this exercise; many governments here and in other countries are devoting considerable effort to this task, as I know you are. Regulation of an industry is one of the most difficult responsibilities faced by governments. Regulation must be understanding, pragmatic and flexible enough that the industry will have scope to find its own solutions and to develop in a healthy climate. But what are the public interest safeguards that must be built in to the regulatory process, and how are they to be administered? To what extent can competition be a partial or complete substitute for regulation? I bring no answers today but I do appeal for your support in seeking answers. Inevitably it will be a continuing process and one that will produce results only if the channels of communication among us all remain open -- and are used.

There are many challenges facing your industry today, challenges which will tax its resources and adaptability. It seems appropriate on this occasion to focus on some of these.





First, there are the capital requirements of your industry; second, the national dimension of communications; third, terminal attachments; and finally, the future of our communications manufacturing industry.

#### Capital Requirements of the Future

Judging by your own extrapolations on past capital expenditures and your conversations and correspondence, during the next five years you will be seeking, for plant expansion and replacement and long term debt retirement, capital in the order of five billion dollars. There is some reason to believe this is a conservative figure. It could become larger if a major surge occurs in the demand for new and diversified terminal systems and if, as a consequence of their incorporation into the networks, the traffic patterns and message parameters change abruptly, or if that traffic imposes requirements on central networks which cannot be met by the techniques and hardware in place and which would then require you to accelerate plant retirement and replacement of switching, of transmission and/or multiplexing facilities.

Looking at our neighbour to the south, the demand for outside capital on the part of the United States carriers varied between three quarters of a billion and one billion dollars per year from 1961 to 1968, rose to three billion dollars in 1969, four billion in 1970 and five in 1971. The relative magnitude of this demand very likely figured as an important consideration when the Federal Communications Commission embarked on its present course of admitting new entrants, and thus new



capital, into the public communications sector through interconnection.

Back home then, let us say that the demand for capital in Canada, if we include the uncertain demands of the evolving terminal and peripheral field, will be somewhere between five and ten billion dollars in the next five years. Now, in a world dizzy with multi-digit numbers, what does this mean? Within this range of five to ten billion dollars lie the sum of the annual personal savings of Canadians. And, in a broader framework, Canada's total new annual capital formation runs to around 20 billion, about half of which comes from outside the country or from foreign controlled sources. In either of these contexts, the carriers' five year capital requirements could be fairly said to range from large to very large.

Where then is the new capital to come from? A certain amount of it will come from amortization reserves. At five to six per cent on a six billion dollar plus plant, amortization will generate about \$450 million in the mid year of this span and thus something in the order of two and one quarter billion dollars over the next five years. If 40 per cent of the net income of the carriers were reinvested in each of the next five years as it has been in the recent past, another half billion dollars can be added to the two and one-quarter from amortization, for a total of two and three-quarter billions. That leaves a shortage of a mere two or more billions.

One of our traditional means of finding capital has been through borrowing in foreign markets or, to the collective dismay of many of us,



through sale to foreign interests. The telecommunications industry is now about 82 per cent owned by Canadians. In view of the vital importance of the industry to national development and autonomy, I think that it is a very good thing that today it is predominantly under Canadian control and ownership and I believe it is in our country's interest to keep it that way.

We have to ask then whether our growth possibilities are to be limited for lack of capital, and whether our "future talk" about new communications services and the developing impact of computers and their peripherals on communications is to remain only talk. Should we brace ourselves for a deterioration in communications services relative to expectations and need? My answer to each of these questions is an emphatic "No". I think that Canadians are capable of saving more and investing more, and will do so if they judge it to be in their interests. I believe we are capable of keeping our own communications industry distinctively Canadian and developing it as we must.

In the coming months we shall be looking collectively at many aspects of cost. We shall most certainly be examining the industry's amortization concepts. If the industry geared to a 15 to 20 year obsolescence base must adapt to a computerizing world which has been changing generations every five years, the arithmetic will have to change. There are obviously limits to which innovation can go. Doubling the amortization rate of the common carriers would demand a 20 per cent increase in revenue requirements. But let us remember the willingness of the public during the last decade to invest in and





expend on television. Recently we have seen the phenomenal growth of cable TV. The majority of households in our major cities have been equipped for cable television at a monthly rate of between four and seven dollars. That industry absorbs amortization at approximately twice that of the common carriers' rate.

The consumer has been prepared to buy a second communication service into his home which when the cost of TV receivers are taken into account, requires an annual outlay about equal to what he pays for a telephone service. Indeed, he is paying more than that for television when the advertising of his consumer goods and his tax support of public broadcasting are added in. Obviously, Canadians and Canadian business are willing to pay a lot more for new products and new services, but they will not readily pay more for the same thing.

The communications industry is entering a new era of new services and new terminal devices, furnished under new competitive frameworks. We should now be thinking in creative and imaginative ways about how we can innovate in new contexts, particularly those in which the investor can be attracted to participate in new ways and be excited enough to want "a piece of the action". If you neglect to innovate, other entrepreneurs surely will, possibly to your chagrin.

Now, I am going to leave the subject of capital and its sourcing for the moment, and turn to the second of my four topics.

#### The National Dimension in Communications and the Inter-regional Network

Last year the Department of Communications invited the major



carriers and the provincial communications agencies to join in a Working Group on Inter-regional Telecommunications. This group is reaching completion of the first phase of its work, related to the national long haul transmission system, its present condition and the traffic which it will need to support in the coming decade. The results are being reviewed by the participants and will be documented in a few months.

It is only within the last 20 years that Canadian communications have developed a sizeable inter-regional element. For a long time our inter-regional facilities were to a large extent conjunctions of regional networks. Now the coming electronic expressways of Telesat and national coaxial cables, together with the existing broad-band microwave systems, are preparing a new phase of our national communications grid.

The system is good today. We all want to become better tomorrow. Communications are vitally important to the industrial, cultural and general social development of any region of Canada as well as to the nation as a whole. Recognizing this, there will have to be more efficient and more intelligent rationalization and integration of facilities on a regional, inter-regional and international scale.

It would be hard to claim any cartesian rationality for our present jurisdictional structure in Canadian telecommunications. It will be a subject of considerable discussion in the coming months, if not years, and I welcome your views and those of provincial governments in exploring its mysteries. To resolve the cumulative confusion of a century may take us awhile.



Most provinces have established centres of government responsibility in communications, and with good reason have been giving a great deal of thought to their future roles. There is a regional aspect to communications. There is also certainly a national dimension -- a vital national dimension. Our discussions will have to give adequate attention to both regional and national interests, or we could end up degrading rather than improving what are possibly the finest communications services in the world. The Inter-regional Working Group will provide our federal-provincial dialogue with a sound factual base so that in our hot pursuit of new goals we do not careen into new operational problems.

The third subject on my list today is one which is engaging a good deal of your attention and, I am sure, your concern.

#### Terminal Attachments.

We all know the occupational hazards of crystal gazing. And yet one cannot talk about interconnection, or attachments, or terminal devices, without a certain amount of speculation about the future. So, I would venture a guess that terminal devices will be the most dynamic sector of communications system development in the next ten years.

Neither of the common terms "interconnection" or "attachment" describes the issue well. What we are seeing is a rapidly developing and even exciting re-discovery of the public switched network. For some 75 years it has been an essentially voice network with a distinctly lesser



element of other services. Now emerging are virtually hundreds of new applications of the switched network. Equipment is being conceived, developed and demonstrated to meet these applications. There will be various mutations on the basic telephone theme. There will be devices to divert calls to wherever the called party might be, conference bridges, repertory diallers to reduce seven, eleven and fifteen digit telephone numbers to a few digits or simply one button on an index plate. Beyond this will be automatic answering devices, message receiving and recording devices, slow speed image devices, electric typewriters operable over telephone lines and harbingers of the electronic post office. Then, there is the vast unpredictable world of so-called computer peripherals, with some 500 varieties on the market -- terminals providing access from man to remote data processors. They include people to people, people to machine and machine to machine devices; seat reservation systems, stock quotation systems, endless information services. The bulk of these terminal devices can operate over the public switched network; they will utilize keyboards, fluorescent tubes, accoustic transducers, various electro luminescent devices. At present they come at prices which can be justified only in commercial uses, but in time they will migrate from the office to the home.

Under the urging of device makers and would-be attachers, users and suppliers, the Department of Communications initiated an inquiry into this whole matter six months ago. As so often happens in our field, questions which seemed to have relatively simple answers turned out to be not only very difficult but, in some cases, the wrong questions. In six months of inquiry, each answer has raised more new questions than it solved.





Even those who thought they were sure about the changes they wanted are now re-examining their views. What is to be the point of connection or attachment? A plug in a wall, the cable lead outside, somewhere inside the wiring of a skyscraper or far away in a local office? Who will own, renovate, maintain and guarantee the compatibility of the attachment with all the possible attachments with which it is likely to connect? What is a reasonable charge for the use of so valuable a resource as the public switched telephone network? The business subscriber has traditionally paid more for his communications services than the individual consumer. That fact is fundamental to the present stability of the telephone economy. Should this continue to be so in the case of attachments? Should the terminal attachers, concentrated mainly in urban areas, be expected along with other urban subscribers to make their contribution by way of cross-subsidy to extension of service into rural and remote regions of the country? If the wonderful new devices come from remote factories in Germany, Japan or California and take a month to repair or replace, what should governments be prepared to do about public complaints? And who should collect the bills?

Our Department is working towards the publication next autumn of a working paper on interconnection policy. It is not going to be a policy document full of pat answers or even pat questions. It will be a "think piece" and its object will be to narrow the almost unlimited spectrum of options which were on the table six months ago to a narrower range of viable ones, so that the second stage of consultation, with the carriers, suppliers, provincial governments and anyone else of the interested public, can proceed to the policy-making stage.



The evidence so far indicates that the era in which one franchised monopoly provides , portal-to-portal services in public communications -- which did so so well for telephony -- may be ending. It is not realistic to believe that one company alone in any region could find the capital, the massive diversity of resources, the fantastic range of innovative skills and the know-how required by the myriad devices of the systems which will be occupying the terminal area in the future. It is also difficult to see how the future promise of terminal area diversification and development could be realized under a severely controlled and regulated regime which decided what devices were to be made available, how long they should endure in amortization terms and how much they are to be worth.

The other end of the spectrum appears equally implausible. There are ten million telephone subscribers in Canada. By 1985 there may be one million of them, or others, using some complex of new and different terminal devices representing total investments in the hundreds of millions. The telephone industry in Canada has been able to support a handful of manufacturing enterprises on a scale sufficient to yield the advantages of volume and to underwrite competition in the vital area of exports. There are anywhere from 10 to 100 international corporations, big and small, which would want to enter our domestic attachment device market. It is not likely that every one of them could build a sufficient base in our market to research, develop, manufacture, manage, provide employment to Canadians, and offer the public equipment and devices at reasonable prices. We can hardly be satisfied with competition at some inflated level required to support a highly fragmented and highly under-utilized industry. Nor do I think Canadians would like to become entirely dependent on importation in this vitally important and high value-added sector. For my part, I do not find chaotic laissez-faire a



satisfactory option.

Our solution will probably fall in good Canadian fashion somewhere in the middle. It seems to me that there are certain fundamental conditions that must be fulfilled. For example, any new attachment policy must assure that the integrity and efficiency of the present networks be maintained. It must assure that Canadians' essential and basic communications services are not penalized in cost or in quality. It must assure fair access to services new and old, for small and large business, for one or another sector of a province or the nation and it must not undermine the present effective control of Canadian communications by Canadians. It is not hard to find solutions which are at the limits of any spectrum of options. There is no difficulty in defining a monopolistic and rigidly regulated regime. It would be equally easy to open the doors to chaos. The middle options will be much harder to define and to stabilize.

I think there could be new opportunity for the carriers of Canada to found separate structures financially segregated from their regulated operations, to learn and practice a vigorous and competitive game with others from different avenues of experience than that of regulated utilities, to attract the savings of Canadians, to invent ways and means in which the public can profit from both savings invested and the functional benefits of a new information world. I believe that the terminal device business offers the carriers and the communications industry as a whole an opportunity for new beginnings and new enterprises, in both the service and hardware sectors. For skilled Canadians, it offers new chances to invent, develop and manage in this fascinating business of communications.





Our working paper of next fall should provide a common framework for consultations, from which I hope that some time next year we will be ready to revise some old rules and devise some new ones. In the meantime, we will not be stampeded into some solution on the simple ground that that is the one which is being practised in the US, USSR, Germany or Japan. We are looking at everybody's solutions, but we will try to do collectively what best suits Canadians when we feel confident of what that is.

I would like now to move to the last of the four items I wanted to touch on today.

#### Communications Hardware Industry and Carrier Procurement

To approach the subject of the hardware industry I have to close the circle back to the beginning of my remarks today -- the capital expenditures of the carriers over the next five years. The lower range of these expenditures, you will recall, is estimated at five billion dollars for the next five years. Of course capital expenditures, like revenues, are an exponential process and the volume of procurement next year probably would be less than the mean, just as the procurement in the fifth year probably would be above the mean. But for my purpose today, the purpose of macro-economic approximation, perhaps I might use an annual figure of one billion dollars. I would estimate -- emphasizing that more data would minimize the guesswork -- perhaps 25 per cent of that would be for land, buildings and vehicles leaving about three-quarters of a billion dollars to be invested in communications hardware. That is a very large sum on the Canadian communications and electronics manufacturing scene. It constitutes more than a quarter of that industry's present total sales to



the domestic and export markets. The Canadian common carrier industry constitutes the single largest procurement block for Canadian communications-electronics hardware.

It is trite today to dwell on the importance of the electronics industry. Someone has said that any nation which fails to develop it as a matter of national policy opts for subordination to other countries and other economies. This industry is fundamental not only to communications but to automation, to computation, to labour saving, to excellence, to the elite jobs of tomorrow.

It is perhaps for this reason that in virtually every developed nation special measures have been taken either by government or by principal operating entities to assure the development of this manufacturing sector. These involve various forms of non-tariff barriers, generally impregnable to Canadian exporters. The patterns vary but the effect is much the same. The postal and telecommunications administration buys from a selected collective of national enterprises. Or, the common carrier industry and its supporting hardware sector are vertically integrated. Or both the service industry and the hardware industry are state owned, managed and controlled. And we hardly need to be reminded of the unilateral options which nations are prepared to exercise when their economies are thought to be endangered by imports.

At the same time, in virtually every other nation of the world there is or has been some major deficiency in the development and performance of communications networks; failure to meet conventional demand; failure to



anticipate new twists in demand and in traffic patterns; adherence to obsolescent technology. And as often as not the critics have blamed the malaise on just such forms of protectionism and industrial introversion.

There is some vertical integration in the Canadian industry, particularly on the part of the two largest private enterprises, telephone companies which serve more than two-thirds of Canada's subscribers. There is also a substantial proportion of the industry which is not so integrated, and which has bought its hardware largely in Canada but to some extent abroad. The situation is as mixed as any other aspect of our industry.

Many of you are familiar with the arithmetic of export. Often marginally added export volumes can produce marginal profitability for an enterprise even when the exports are priced to exclude a wide range of indirect and overhead costs. Research and development, management, plant and equipment investments are relatively invariant with small changes in volume. That, after all, is the mathematics of mass production.

When the benefits of such pricing are borne with exports to developing nations, commerce performs the function of distributing some of the wealth of the world from the more fortunate to the less so. When such practices are applied in reciprocally free trade between developed nations, they become a most effective instrument -- perhaps today's only really effective instrument -- for competitive vigour and the elimination of the inefficient. However, when they are applied between developed nations on a non-reciprocal basis -- that is, when one developed nation closes its markets to another whose markets it seeks to exploit -- grave



injury can be visited on the host nation's industry and development. In fact, such practices could drive a developed nation backward into under-development. Canada is firmly dedicated to free enterprise and to reciprocally freeing trade. We will continue to work for the removal of non-tariff barriers in other countries and would prefer not to have to introduce them into our purchasing practices.

The prices of hardware offered to Canadian carriers by exporters of nations whose domestic markets are closed to Canadian industry need not be flagrant dumping prices to undermine our communications and electronics hardware industry. They need only be 10 or 15 per cent under the exporter's domestic prices to assure that exporter a substantial margin of profit and to assure that the Canadian manufacturer is driven into unprofitability or loss.

Canadian carriers hold the keys to the telecommunications hardware market in this country. You bear a heavy responsibility. To your subscribers for high quality, low-cost service; to your owners for your own solvency and stability, and to the vital enterprise dependent on you. None of us can afford to ignore the nature of today's international communications electronics hardware situation and disregard its consequences on our economy.

There are fundamental questions to be answered. What, if any, price differential is domestic availability of design and hardware worth? Should any preference be given for domestic procurement other than quoted price advantage? Could you assure the discharge of your responsibilities if your suppliers were in large part, located in foreign countries and subject to the





priorities of their governments and their carriers? Are there particular lines of equipment upon which Canadian manufacturers should concentrate, leaving selected items to be most effectively acquired outside the country? Are there provincial priorities in the industrialization sector which demand your attention? These questions can be readily broken down into subordinate and more specific questions. Their answers are essential for the government's framing of government policies with regard to the relations of the hardware industry to the carrier industry and to the development of both.

There is today some real urgency for asking such questions and finding the answers. I think they should be asked and discussed openly. Even when operated as a private industry, the business of common carriage is a very public matter. We have asked your Association to take this subject under consideration. I hope you will agree on its importance and perhaps give it a send-off today, so that the Department of Industry, Trade and Commerce, as well as our own may know your views and take them into account along with the interests of other segments of the economy and the public. Undoubtedly you have thought already about such an important concern as a part of your management function and hopefully your views can be formulated with dispatch.

I have touched today on four major topics. There are others equally or nearly as important. Any one of them could suffice as a challenge to an entire industry. All of them confront you simultaneously today. Why they do, is not very material now. They are simply and starkly there. Whatever the circumstances which have thrust them forward,



they will demand your attention and mine now and in the future.

I hope I have helped you to appreciate why the Department of Communications was created, and why in three short years it has not solved all its problems let alone all yours. I suppose it could have -- after a fashion. It could have arbitrarily, thoughtlessly and without consultation, produced answers even where questions were not formulated, imported solutions from here, there and anywhere. It chose not to. It chose to consult and discuss. It discovered in the Telecommission, in the Computer/Communications Task Force, in the Interconnection study, in the Inter-regional Working Group, that you and the affected public did not have ready answers, nor indeed the ready data on which you could readily agree. But we are making important progress together. We are patiently and laboriously building consulting mechanisms which are essential to the preservation of our pluralism and our preferred brand of democracy. We are visibly narrowing our options in interconnection. We are now beginning to seek out and consolidate our collective views on the hardware industry.

Through consultations in the general inter-regional context and in implementing the microwave licensing policy, we have resolved dozens of confrontations between carriers and non-carriers and avoided potentially wasteful duplication. Many of these solutions have been satisfactory. Some have had to be tentative while more comprehensive answers were or are being explored. Others might have been better in someone's judgement had we been willing to resort to arbitrariness.

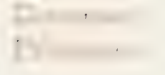
I am confident that with the emergence of your Association, all



of us have taken a big step forward towards ensuring the continuity of the many singularly good aspects of our communications industry and to finding the facts, figures and answers we all need in a spirit of collaboration and goodwill. If we do not succeed, we will certainly be by-passed by others who can muster the courage and demonstrate the flexibility to face and cope with the very rapidly changing communications scene. We have no option but to succeed, so we will.







Notes for a speech  
by  
HON. ROBERT STANBURY  
Minister of Communications

to the  
ASSOCIATIONS FOR SYSTEMS MANAGEMENT  
(MONTREAL CHAPTER)

Sonesta Hotel, Montreal, P.Q.

6:00 P.M.

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Two years ago, as all of you here know, the Department of Communications initiated, by establishment of the independent Canadian Computer/Communications Task Force, a major and comprehensive inquiry into that new class of systems and of business enterprises known variously as computer utilities or tele-processing systems. Whatever they are called, these undertakings involve a marriage of the long-established, though constantly changing, communications systems with the relatively new and far from fulfilled industry of data processing. This marriage can, and to a degree already has, given forth a range of unfamiliar offspring, including such exotic systems as electronic banking, on-line Management Information Systems and Computer Assisted Instruction.

We have only just started to bring into focus the likely future of the computer-communications industry, and to separate out blue-sky theorizing from hard commercial fact. One core fact is that the industry, valued at \$1 billion today, is calculated to grow to \$4 billion by 1980. Another core fact is that a number of immediate and critical decisions are facing the federal government, on issues such as the relationship of common carriers to independent service bureaus, on inter-connection, on third-party multiplexing. (These terms are only slightly less difficult for a layman like myself than the issues are for the experts.)

The report of the Computer/Communications Task Force, Branching Out, was published in the first week of August. We are awaiting the comments of provincial governments, of users and of the industry, and meanwhile within government a comprehensive evaluation of the report is underway. In fact, the first meeting of senior officials from all the departments concerned was held last week. I emphasize particularly, the interest of the provincial



governments because there is no clear jurisdictional pattern for handling many of the issues we have identified. On the basis of the comments received, and of our own study of the Task Force report, we expect to be able in the near future to reach concrete policy decisions.

In the meantime, a parallel study has been underway which for me, as a layman but also as a lawyer, is somewhat easier to relate to, although its subject matter is perhaps even more complex than that of the Computer/Communications Task Force.

Did I hear someone say "What, another study?". Believe me, particularly in this crucial period for a politician, I would love to have studies over and done, and specific action underway. But, alas, this cannot be.

Communications, whether of data processing or of the more familiar form of the transmission of audio and video images, is a subject not only of immense complexity in itself but one which is intimately related to a whole range of other activities in the economic, commercial, political, social and cultural spheres. The Department of Communications itself is little more than two years old. Without in any sense intending to denigrate the efforts of those who went before, and with the critical exception of broadcasting, the bare truth is that Canada until now has had no recognizable communications policy. This phenomenon is by no means unique to Canada. Similar soulsearching about communications, and often similar studies, are going on in virtually every western country, as governments everywhere come to recognize the importance



of communications and then try to translate that recognition into practical, on-going, policies and programs.

This common recognition, leaping across national boundries, has occurred with particular impact on the relationship between computerized information systems, which are proliferating everywhere and becoming continually more efficient and more extensive, and the personal privacy of individuals.

In April of 1971, the federal Departments of Communications and of Justice established jointly a special Task Force on Privacy and Computers. That body has completed its work and its report should be available within the next month or two.

This report, will, I believe, in some ways constitute a landmark. It represents an attempt to describe, analyze and evaluate a social issue before that social issue has degenerated into a crisis. A comparison can be made, although almost all comparisons are dangerous, with the environmental pollution crisis which was recognized, and responded to, far too late. The privacy issue, although it is being given increasing attention and is causing increasing concern, is not yet a crisis, nor is it out of control. It could spring out of control unless we recognize and come to terms with what we are doing in building and using ever more efficient information systems -- computerized or not -- which store more and more personal information about individuals, often without the knowledge of the individuals concerned, and then use that information for purposes of which the individual is neither aware nor over which he has any, or at best very little, control.

The origin of the privacy issue can be traced back to 1965 when a proposal to build a National Data Bank was brought before the





United States Congress. On examination it turned out that no thought whatever had been given to the question of privacy protection in the design of this data bank, and the proposal was subsequently rejected. Not only was the proposal rejected, but for the first time privacy, in terms of information systems, became a social and political issue.

Today the subject is under study in virtually every western country. A Swedish Royal Commission has just published its report, as has the Younger Committee on Privacy in Britain. In the United States a major inquiry, undertaken by the National Academy of Sciences, should publish its report in the next few weeks, and the Department of Health, Education and Welfare has recently established a committee to look at the question, particularly in respect of the problems for individuals which might be created through the establishment, as has been proposed, of universal numbering systems or Single Identifying Numbers.

Such systems -- and a somewhat similar approach has been proposed recently by the Canadian Standards Institute -- in a way illustrate the core of the problem. There is no question whatever of the economic and related benefits of data processing and of computerized information systems. A fairly convincing case can be developed -- although specific details are often lacking -- in terms of increased efficiency and productivity, of a universal numbering system. Yet such a system does just that: it reduces people to numbers. It also makes it easier to compile, by merging separate files, comprehensive dossiers on selected individuals, or on all individuals. The benefits of such systems have to be weighed against their social costs, actual or potential. And social costs,



or benefits, as we all know, are far harder to assess and to predict than economic costs.

In recent years a great deal of effort has been given by government to trying to assess social costs and benefits. Much of this effort has been, frankly, a failure. I doubt that today we are really all that much more confident in our predictions about the second-order environmental effects of a particular policy or program than we were in the simpler -- at least they now seem simpler -- days of government a decade or more ago. Yet the attempt must go on: we have too many painful examples of various programs being initiated with the best of intentions and of their then becoming a case where the cure was almost as bad as the disease.

The Task Force's work was divided, broadly, into three areas: description; analysis and evaluation. The descriptive phase, which absorbed the main effort, amounted to an attempt to detail who collects what types of systems, for what purposes. Site interviews, by two- or three-man teams, were conducted with the operators of 42 of the largest data banks in the country, both public and private and of all types, financial, credit, medical, travel, and entertainment, welfare and so on. An extensive questionnaire, of 72 separate questions, was developed and mailed to some 2,500 operators of data banks, of all types and all sizes. The replies to this questionnaire constitute the main source of data for the Task Force. Letters were sent also to the operators of 13 data banks in the United States which store personal information about Canadians. Briefs were requested from all interested associations, both industrial and professional.



The analysis phase constituted two parts. The first was technical. A study was made of the particular problems of security in information systems, and the general conclusion was that traditional security precautions, in terms of personnel selection for example, are at least as important if not more than sophisticated systems of locks and passwords. A study was made also of the likely future trends of computer technology and how these might impact upon the operation of information systems. Among some trends that were discerned were the tendency of computerized systems to centralize the storage of data, and therefore to centralize decision-making, with, at the same time, a contrary trend toward a dispersal of access to the data base through remote terminals. An analysis was made also of the state of existing law in respect of privacy, to determine how much protection might already exist. As a general observation, it can be said that the law is underdeveloped in this respect, although significant Privacy Acts have been passed recently in Manitoba and British Columbia, while at the federal level a proposed Protection of Privacy Act in respect of electronic eaves-dropping was brought before the last Parliament.

The evaluation phase of the Task Force study was concerned with an assessment of a range of possible responses or remedies to the threat, actual or latent, of invasions of privacy. These range from self-regulation by the industry itself,





of which a model would be the Code of Ethics developed by the British Computer Society, to the kind of Obudsman of Data Commissioner which has been implemented by a number of States in the Federal Republic of Germany, to the surveillance agency which would monitor developments which might impact on privacy but which would have no actual enforcement powers, through to a formal regulatory body or tribunal, a model much favoured in some of the early writing on the subject but less favorably viewed now.

Until the report of the Task Force is published, I am obviously constrained in the amount of specific information I can give. I would, however, like to make two general comments.

The first concerns the issue of access. In any study of privacy in relation to information systems, one fact stands out. It is institutions which collect data; it is individuals about whom the data is collected. Between these two parties there is a clear imbalance. Institutions decide what data they need, and the purposes for which it is needed. Individuals often don't know that data about them has been collected; they do not know **what is in their** files; they do not know who has the right to see the data nor the purposes to which it is put. Access by individuals therefore becomes, potentially, an important means to correct this imbalance. The process would have to start with individuals being informed that files about them were being compiled, continue with them having a right to see the file and to correct inaccurate information in it, and follow through to a right of individuals to know the uses to which information about them will be put.

My second general point, to a degree, follows from my first since it relates also to this institutional-individual imbalance. The fact is



that in part the debate about privacy and computers has little or nothing to do with privacy as we commonly understand that term but rather is concerned with power. (The debate, I might add, is miscast also if it is applied to computers alone; one of the findings of the Task Force survey was that most institutions still maintain their most sensitive information in manual files.) The debate over power relates to the extent that there is, as is so often claimed, a relationship between information and power. Those who possess information are able to make decisions that influence the lives of those without access to that information, since such individuals lack the means to, in effect, argue back.

The collection, storage, processing and distribution of accurate information is central to our economic and social well-being; our society, whether it is in respect of credit or of welfare programs, could not run without information, or could run only at an incomparably lower level of efficiency. Yet that same information is, or can be, power. It can enhance the power of institutions at the expense of individuals; it can make individuals more susceptible to manipulation and to enforced conformity.

The advent of the computer has given rise to a large of amount of often academic, utopian and futuristic visions of new patterns of information sharing, of access by the general public to the enormous power of data processing. So far the direct opposite has happened. Computers have been used virtually exclusively by established institutions, for the obvious reasons that they are expensive and difficult to operate. The general public does benefit from the use of computers to the extent that institutions which serve the public gain in efficiency through their use of computers. But in terms of direct benefit to the public, the facts are otherwise.



Computers may be decades ahead of the old-fashioned, print public libraries in technical terms, but in social terms they are decades behind. No computerized information system today serves the public in the direct, open-access, no-direct-charge way of public libraries. One of the recommendations of the Canadian Computer/Communications Task Force was for the allocation of funds to computer-based projects of social significance, and it is here, I believe, that some of the most creative, but also most difficult, applications of computer power will be found.

In this speech you have caught me, as it were, between reports: one has been published but specific policy decisions on its recommendations have yet to be made; the other has yet to be published. What I have tried to do is to place both in a broader context. And that context amounts in essence to an attempt to come to terms, in social and political terms as well as those of economics, with the most powerful technology of today and one which, despite all our studies and labours, we have only just begun to understand. But despite its difficulties and complexities, this technology has also a more impelling dynamic, that of challenge and opportunity. Which is another way of saying the task boils down to identifying the costs and the benefits. And that is what these studies have been all about. The step beyond is specific action. Insofar as privacy is concerned, I can say that the government fully recognizes the importance of the issue and is determined to take the necessary action. Insofar as the recommendations of the Computer-Communications Task Force are concerned, they are under active study now and specific decisions will be made in the near future, not that long, come to think of it, after October 30th. A very important date.





COMMUNICATIONS AND EDUCATION

A GLIMPSE AT THE FUTURE

Notes for a speech by

HON. ROBERT STANBURY

Minister of Communications

at the

North York Elementary Principals' Association

Conference '72

7:30 p.m.

September 22, 1972

Aston Villa

Bracebridge, Ontario.

FOR RELEASE ON DELIVERY





I can think of few themes more vital to a group of educational administrators than the one you have chosen for this conference. The communications explosion, the initial ripples of which spread through the world of the mass media, is now having its effect on many of society's institutions. Education is hardly the least of these. And the effects on the human condition are equally profound.

The theme is especially appropriate now, for the success with which the long-awaited marriage between education and communications can be consummated will in large measure shape the kind and the quality of education in the future.

Ten years ago, a conference theme such as yours would probably have brought forth a collection of what I like to call the prophets of paedagogical progress. In fact, I can recall a few such conferences, being preached to by such prophets. Remember? They abounded in the sixties -- spawned by the extravagant promises of the new communications technology and weaned by educational futurists and marketing specialists. They were the days of high optimism. Through the wizardry of media, communications and electronics, administrators would be freed from routine tasks, teachers would be able to devote more of their time to teaching and, with an incredible array of aids at their disposal, would



presumably become better at the job. The students and, more indirectly, society at large were to become the ultimate benefactors.

Ten years later, with the results far short of the promises, I sense that many educators are casting a somewhat jaundiced eye at the whole relationship between communications and education. But before we allow ourselves to be guided by disenchantment, perhaps an attempt should be made to examine the reasons for the apparent shortcomings of the past ten years.

First, I think it is generally recognized that too much was expected too soon. The technology of communications from today's vantagepoint was still an infant, still being developed, and had yet to acquire sufficient flexibility to be moulded to specific requirements. The result, in many cases, was that school boards acquired arrays of expensive communications, media and audio-visual tools that were underutilized, that were incompatible with equipment at neighbouring schools and that became obsolete within a short period of time.

Second, the state of the art of communications technology in the early years tended to dictate educational goals and curricula. Because of the technical limitations of the new media, educational goals seemed to suffer from the process of being moulded and adapted to meet the conditions imposed by the state of the art. The technology was the thing, so much so that it often appeared to be seen as the end



rather than the means to an end, with the result that while the technology developed at breakneck speed the quality and quantity of programming -- the software -- was slower in meeting the demands of the new age.

Third, I think it took all of us a certain period of time before we began to understand the true nature of the communications media. Modern communications are means by which we can shake the bonds of space and time in exchanging information. But they are far more than that. They have totally altered the way we perceive our environment. I continue to be dumbfounded by statistics on TV watching. The average person, upon leaving high school, has watched some 20,000 hours of television and has spent more time at that pursuit than any other activity except sleeping. It has been said, with some accuracy I think, that man today lives in a maze of electronic signals. This poses a double challenge to educators: to help students find their way through the content of that maze and to make the optimum use of those signals as learning tools.

When television was first applied to education, traditional approaches to learning and established curricula were too often simply transferred as adequately as possible to the new medium. This is intended as no criticism of the ETV pioneers, for there is no other way to proceed but from the known to the unknown.





We realize now that the nature of the medium demands new prerequisites, new approaches and new methodology. The mass media have profoundly changed our lives, and it is not unreasonable to expect that, as the communications technology is increasingly utilized for educational purposes, it will change the nature of education as well.

What changes it brings, of course, depends on how it is used, on the crucial choices and decisions of educators, in concert with communicators, engineers, computer programmers and specialists from a host of other disciplines.

During the next few moments, I would like to explore with you some of the future avenues down which communications technology may be leading us. I will not presume to tell you how these techniques should be applied to education, but the possibilities seem to me exciting enough to merit your study.

Television will undoubtedly take an increasingly prominent role in education as provincial ETV systems develop. We have tried to help by our recent modification of a long-standing policy which prevented any provincial government or its agents holding a broadcasting licence. Licences may now be issued to independent corporations, not directly controlled by a provincial government but established by the province for the purpose of broadcasting educational programming. These corporations will be free to control program content so long as it conforms to the definition of educational programming agreed upon by the federal and provincial governments. The Canadian Radio-Television Commission, fulfilling its duty to maintain the integrity of the



national broadcasting system, will be responsible for ensuring that these educational broadcasting stations provide programming distinctly different from the general broadcasting provided by the CBC and privately-owned stations.

Television has been a feature of the classroom for a decade now and monitors are considered standard educational equipment in most schools, at least in Ontario. However, I suspect few school boards would gladly contemplate a cost-benefit analysis of its ETV investment.

To administrators, teachers and students alike, the medium has proved useful but, as you are acutely aware, there have been limitations to its effectiveness. On-the-air programming, for example, demands that students be present at a particular time and place. Just when you were trying to break out of the lock-step approach to education, ETV posed massive problems in scheduling and severe timetable disruptions. The emergence of the videotape recorder, permitting some flexibility in transmitting, recording and using programs, has partly alleviated this problem.

In Ottawa, however, a new system is being developed that promises to take this solution a step further to provide instant access on demand to recorded television programs. Called IRTV (for instant retrieval television), the system utilizes classroom monitors and direct telephone lines linked to a central resource library. About 150 locations in five Ottawa schools are now tied into the system, and the library contains about 2,600 films and video tapes. Teachers, using a cross-referenced catalogue, can order by telephone a program to be shown on a particular monitor either immediately on demand or



at a convenient future time. On-demand programs are transmitted to the monitor within sixty seconds after the request is received.

The IRTV experiment is a combined effort of Bell-Northern Research, the Ontario Institute for Studies in Education and the Ottawa Board of Education. Two years of experimentation have been completed, evaluation of the system is now under way and thought is being given to extending the system to other schools and to other cities.

Television will start to have its really significant impact on education, it seems to me, when it escapes its still primitive state as a one-way communications system through which the student passively receives information, ideas or impressions.

Closed-circuit cable television systems offer the technical possibility of two-way interaction. Already, cable TV reaches more than 1,000,000 homes in Canada and the number is steadily increasing. Three years ago, we imposed a federal licencing requirement that cable television companies must provide one channel for use by provincial educational authorities. This fact alone has ensured a close linkage between the futures of education and of CATV. The technology required to create two-way communications capacity in broadband cable systems is already developing, with implications for the learning process that are potentially extensive but largely unexplored.

My Department has undertaken some exploration of this field through a contract which we have just entered into with Carleton University for construction of a Programmable Video Simulation Laboratory. This lab will be developed to study all the ramifications (social, technical, psychological and economic)



of applying video communications systems and techniques in education, telemedicine, teleconferencing, new services to the city home and urban and regional planning.

Looking further ahead, some educators foresee the increased use of computer/communications in developing future learning systems. Indeed, the report of the Canadian Computer/Communications Task Force, released last month, earmarks education as one of the prime potential users of computer/communications facilities and, already, several research projects are under way in an attempt to discover how this new and growing technological resource can be applied to achieving educational goals.

Computer/Communications are already an integral part of the operations of federal and provincial governments, large businesses and corporations. How can this relatively new resource be applied to the learning process and what effect will it have both on society at large and on education in particular?

Our Task Force report had this to say: "Examining the impact of technology on society today has been likened to assessing the impact of the automobile by judging reactions to the Model T in the 1920s. One could say that computer applications in education have not even reached the Model-T stage. They are still in their infancy. They exist mainly as small, experimental systems and few people beyond those directly involved know of their existence or understand their potential. It is therefore difficult to obtain comments from anyone outside this group which, by virtue of its involvement, is both enthusiastic and optimistic".

Computer-aided learning systems offer the possibility of increased efficiency in the education system and at least one study has produced evidence





that, on the average, a student learns faster using computer-assisted techniques.

Their development, however, will not be without problems, some which sound familiar to those of us who have had some experience with early ETV. The Task Force report foresees that implementation of computer-aided learning systems in the next ten years will depend on the availability of adequate course material. "Overcoming this problem," the report says, "will require a sizeable injection of funds which will not be recoverable for a considerable period of time. There is also an inherent difficulty in changing the structure of the educational institution so that all forms of educational technology are treated as an integral part of the teaching process, rather than strictly incremental aids."

Costs of developing curricula and course material for use with computer-aided systems promise to be high, but there are indications that long-term savings may be possible in some cases through increased efficiency and reduced staff-salary budgets.

In recent years considerable emphasis and energy have been applied to the development of learning systems capable of providing individualized instruction, and this appears to be an area which lends itself to computer-assisted techniques. Proponents of individualized instruction cite among its advantages the possibility that slower-than-average learners would avoid the frustrations inherent in a competitive classroom situation while fast learners would not be impeded by the learning rate of the classroom average. It also appears to offer significant possibilities in the field of continuing education.



There are those who foresee the day when a computer terminal, linked to a wide variety of computer-service installations, will become a common feature of the Canadian home, much as the telephone is now. The technology for such a system appears to be just around the corner, but actual implementation will depend largely on consumer acceptance and economics.

I cannot even begin to imagine what effect computers in the home would have on education, if these facilities were applied to the learning process. Teaching, teachers, curricula, even the physical concept of a school building, all may have to undergo profound changes.

At present, many of the technical requirements for computer-aided learning systems are not operational but only in the conceptual phase. The development of systems tailored to the needs of specific educational goals will be a product of co-operation among many disciplines and institutions.

During the past five years, through the National Research Council, the federal Government has been evolving a research and development program in computer-aided learning systems, in co-operation with provincial educational authorities. The Ontario Institute for Studies in Education has been one of the largest contributors to the project, and has been actively developing course content for the system.

Recognizing and respecting the provinces' exclusive legislative authority over education within their borders, there would appear to be room for much more co-operative effort between federal and provincial authorities in the development and evaluation of technological communications systems for learning



applications. The Department of Communications, The National Film Board, the C.B.C., the N.R.C. and other federal agencies could contribute to such a co-operative program. It could minimize waste and maximize the benefit of new systems as they come onto the market and are added to the arsenal of educational aids from which you will have to choose.

It is essential that we avoid the vast unproductive costs of uncoordinated and fragmented development of complex technological systems, and that Canadians reap the greatest possible gains from them.

In planning the highly interactive future of communications and education, it will be vitally important to distinguish between ultimate promise and immediate possibility, between technological gadgetry and systems which offer genuine human returns.

The potential advantages of modern communications to education make it highly unlikely that the process of applying the technology will do anything but advance. Nor do I think we would want it to falter. The development of any system that promises better, more cost-effective education must be seriously explored not only by technologists and engineers and, indeed, not only by educators, but by all those who are interested, concerned or involved in the educational process. And in Canada that's all of us.





Notes for a Speech  
HON. ROBERT STANBURY  
Minister of Communications

at the  
25th Anniversary Celebration  
of the  
Canadian German Society

at the  
SCHWABENKLUB  
KITCHENER, ONTARIO  
2:00 p.m.  
SEPTEMBER 24, 1972.

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It is a great honour for me to be your guest on this memorable occasion of the 25th anniversary of the Canadian German Society. I am not sure whether I am here in my capacity as Minister of Communications, or as the former Minister for Citizenship, or as a German-Canadian boy, or as the husband of a German-Canadian girl -- from Kitchener. But I am glad to have the opportunity to come back to a city which is one of those I call home.

Ich bin ein Berliner.

The Prime Minister of Canada, Pierre Elliott Trudeau, has asked me to bring you his warm greetings and express his gratitude to you for your contribution to the multicultural riches which all Canadians share. My colleague, Kieth Hymmen, and I join in seconding those sentiments.

For myself, I congratulate you on your Society's continuing success and effectiveness. I am aware of how much it has already achieved -- not only for the Canadian German community but also for Canada as a whole.

There are a number of other reasons why I welcome being with you today. In my current role as Minister of Communications I am no less deeply interested in the multi-national character of our country, nor less sharply aware of both its problems and its achievements, than I was before. It seems clear to me that a prime challenge for us as Canadians is to find more and better means of communicating with one another. As I explore the potential of the new technology of communications, I realize its capacity to bring all Canadians closer together, to improve and enrich our relationships, to help us share effectively our many Canadian cultures.



German Canadians have an honoured place in our history and a particularly important role in our multicultural society. You have proved your mettle in your more than 200 years of courageous and high-spirited presence in this country. Germans of the mid-18th Century were attracted to Canada by a notice which appeared in Frankfurt on the Main in 1752:

"Those interested in passage to Nova Scotia in North America are instructed to apply to Mr. Johan Dick or his agent who may be found by inquiry of Mr. John Adam Ahanslagen, Shipmaster who resides at the Sachsenhausen Bridge.

"Those who avail themselves of the terms offered are to receive 50 acres of land each free from all rent and taxes for 10 years and 10 additional acres for each member of the family and they will be maintained for 12 months after their arrival in the Province. They will be provided with arms and ammunitions and a sufficient quantity of implements and material for maintaining themselves.

Signed in the name of

His Majesty King George III, 1752."

The first Canadian settlement of Germans comprised 312 sturdy souls in Lunenburg, Nova Scotia. Soon afterward, the American Revolution sent a flood of 30,000 United Empire Loyalists of German descent seeking refuge in Upper and Lower Canada, in Nova Scotia and New Brunswick, and the Mennonite settlers in this



area began to carve their rich and beautiful farmlands out of the wilderness. Our citizens of German heritage have now grown into Canada's third largest cultural group.

You have good reason to be proud that many German names are emblazoned on the corridors of Canadian history: Charles Fisher of Fredericton and William Henry Steves of Saint John, both Fathers of Confederation; Right Hon. John G. Diefenbaker, former Prime Minister of Canada; John Deutsch, former Chairman of the Economic Council of Canada, and many, many others including several from this area like Hon. Louis Breithaupt, former Lieutenant Governor of Ontario; Kieth Hymmen, of course, and my good friend, Jim Breithaupt, of the Ontario Legislature. The tradition of leadership among German Canadians has been strong and continues to play a prominent part in our national life. It deserves recognition.

One of the most important events of the Parliament just past, in my opinion, was the Prime Minister's announcement in October, 1971, of our Government's new multicultural policy. Mr. Trudeau stated on that occasion: "There cannot be one cultural policy for Canadians of British and French origin, another for the original peoples and yet a third for all others. For although there are two official languages, there is no official culture, nor does any ethnic group take precedence over any other. No citizen or group of citizens is other than Canadian, and all should be treated fairly."





What does multiculturalism mean? It means that every Canadian has a right to be both Canadian and himself -- to treasure his heritage while feeling no less identity with Canada and his fellow-Canadians. The very nature of Canada is defined by the diversity of its peoples. Multiculturalism is a Canadian fact. It is what holds us together, and also what makes us unique as a nation. The more we are able to strengthen and expand this awareness, the further we shall be able to travel, both in terms of our own development and in relation to the other nations of the world.

That is why I feel that the recognition of our multiculturalism in national policy was so important. And it must be more than just a concept, a noble ideal remote from reality. It must be expressed in action, by government, by organizations and by individuals, to find its full meaning.

Your own German-Canadian community offers practical examples of the potential of this policy. Our government has welcomed and encouraged the exchange programs between Canadian and German students, which have operated for several years. Many of your groups have had a close working relationship with the Citizenship Branch, I know. In the past year I understand that Citizenship grants amounting to more than \$34,000 were shared by such diverse groups as the Joint Canadian Mennonite Historical Societies and the Young Adult Program (in Ontario), the German Male Choir of Edmonton (in Alberta), the



Tomslake Canadian German Association, the Berlin Club and the Peace River Society for the Protection of Fundamental Rights of German Canadians (in British Columbia), as well as the Canadian German Academic Exchange Association and the Trans-Canada Alliance of German Canadians (which your Society fathered). There has also been a special grant to the Mennonite Indexing and Research for production of a weekly journal reflecting the views of the Mennonite community, as well as providing an extensive index of the history and background of Canadian Mennonites. This year so far there have been further grants to Club Berlin, the German Male Choir and the Joint Canadian Mennonite Historical Society totalling more than \$7,000. The noble principle is being not only preached but also put into productive practice. I congratulate German-Canadians on these activities and I am pleased that our Government is able to support them.

A wide range of similar programs have been implemented with federal funding by cultural groups across our country, designed to preserve and enrich our varied Canadian heritages. Prime Minister Trudeau has promised that our Government will continue to provide support in four main areas:

"First, resources permitting, the government will seek to assist all Canadian groups that have demonstrated a desire and effort to continue to develop, a capacity to grow and contribute to Canada, and a clear need for assistance, the small and weak groups no less than the strong and highly organized.



"Second, the Government will assist members of all cultural groups to overcome cultural barriers to full participation in Canadian society.

"Third, the Government will promote creative encounters and interchange among all Canadian cultural groups in the interest of national unity.

"Fourth, the Government will continue to assist immigrants to acquire at least one of Canada's official languages in order to become full participants in Canadian society."

I am proud to have had a part in developing this program and I believe it is worthy of the full support and encouragement of all Canadians. I am convinced, too, that our constantly improving systems of communications will do much to help accomplish our national aims and to let our understanding leap over the territorial barriers which have tended to keep us apart. Canada is so huge a country that it is hard to be as closely in touch with each other as we would wish, to fully appreciate each other's problems, values and aspirations. But today Canadians are increasingly making the effort to know one another, and our Government is determined to place at our citizens' disposal the full weight of new communications technology to help us build of our country a true community from coast to coast.



The new world of technology -- the "wired world" -- will not be without its dangers, which may be as great or greater than those our forefathers faced in the wilderness. But we are citizens of a technological era. We have no choice but to make the most of its potential and exercise all our ingenuity to avoid its hazards.

Communications technology has brought revolutionary achievements and offers even more exciting possibilities. We are all aware how much telephones and radio, and later television and computers, have changed our lives. They have made possible instant communication with each other and with nearly every part of the world. Now, with Telesat Canada's Anik satellite to be launched in November, the people of our far north will no longer be dependent on the "moccasin telegraph". Anik will bring a dimension of communication into their lives which most of us, in urban areas, have enjoyed for years. It will broaden their horizons beyond belief.

Computers, combined with communications systems, are saving endless repetitive paper work and expense. But the time may be not far off when they will take our purchase orders and pay our bills automatically, and we will have entered the cashless society. In education and health care, computers are playing an increasingly important role. They offer considerable promise in language learning. In hospitals, the programming of patient records and of diagnoses, and the efficient, computerized handling of the vast bulk of administrative details save many valuable hours and perhaps even lives.





But each technological advance has its hazards. Modern communications will certainly change northerners' lives, but will the change be all to the good? How can we alleviate the cultural shock to which they will be exposed? Computers are useful beyond measure, but they pose serious problems of privacy. Everything there is to know about us will, very likely, be stored in data banks. Everything that we see and hear will have been "programmed" in advance. We must devise means to prevent the computer converting us into a nation, or a world, of robots.

These are some of the reasons why my Department of Communications was formed as the first new department of the Trudeau Government, geared to the challenges of the present and the future.

Those challenges were the motive forces behind the founding of your Society too -- the challenges of the present, in the postwar period, and of the future for Germans and German cultural values in Canada. You have accomplished much for your people -- who have become our people -- and for Canada.

Our national progress must not be measured simply in terms of growth of Gross National Product although this is, of course, crucial to our prosperity. A better yardstick of progress, Prime Minister Trudeau has suggested, is Net Human Benefit. The quality of life must be the prime concern of government in the technological age.

The Canadian German Society has contributed generously to the Canadian quality of life -- a quality of order, co-operation and



sharing of the cultural assets which we have amassed from every corner of the globe.

I congratulate you, personally and on behalf of the Government of Canada, on your 25th anniversary, and I wish you well in your continuing efforts to enrich our Canadian community for the benefit of us all.



Notes for a Speech  
by  
HON. ROBERT STANBURY  
Minister of Communications

at the  
Official Opening of The  
CANADIAN OVERSEAS TELECOMMUNICATIONS CORPORATION  
SATELLITE EARTH STATION  
LAKE COWICHAN, VANCOUVER ISLAND

Time: 12:35 p.m.

September 26, 1972.

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Canada is a Pacific nation, and the government of Canada attaches great significance to the communications development we are recognizing here today.

Vancouver Island has been the site of Canada's telecommunications gateway to the Pacific for many years. In 1901, the first telegraph cable to span the Pacific was put into operation from its terminal at Bamfield. One remarkable fact of that cable's history is that it was never interrupted in its sixty-two years of service.

Port Alberni is the terminal point for the Trans-Pacific Telephone Cable (COMPAC), operated by Canada and three other Commonwealth countries since 1963.

To-day we are gathered in the COTC's Pacific satellite earth station, visible evidence of a dramatic new technology which will multiply our ability to supply efficient telecommunication services between Canada and distant countries on the Pacific rim.

This Pacific rim region is one to which Canadians are looking for expansion of trade and business markets. In a matter of months this station will be in direct communication with China, where our businessmen enjoyed such success with our recent trade exhibition. While not directly related, it is important to note that the company which built this station, RCA Ltd. of Montreal, is negotiating a contract with RCA Global Communications under which the Canadian company design and construct earth stations in Peking and Shanghai.





Communications through this Lake Cowichan station will complement those now being offered via the Pacific undersea cables, replacing temporary arrangements between COTC and COMSAT for use of an earth station at Jamesburg, California, pending completion of this station.

Canada is a founding member of the Intelsat consortium, owner of the international satellites through which this station will communicate. That organization, in its short eight years of life, has grown to include more than eighty countries. It now manages a \$300,000,000 system, comprising the latest designs that technology has to offer and several Canadian made components.

This is an historic occasion for Intelsat and for Canada. In a few minutes from now the twentieth earth station will join the nineteen now grouped around the Pacific region in eleven different countries.

Initially, the Lake Cowichan station will be working directly with four others -- Australia, Hong Kong, Japan and the Philippines. Early in 1973, service will be opened as well to New Zealand and China.

With the encouragement of our government, the Canadian Overseas Telecommunications Corporation by establishing this station is taking one more step in the implementation of more



efficient overseas telecommunications services for the Canadian public. It is an example of our determination to remain in the forefront of the development of the new world-transforming technologies of telecommunications.

COTC, in collaboration with the British Post Office, is now installing a new trans-Atlantic cable, one which uses new techniques to achieve a telephone capacity 23 times that of COTC's first Atlantic telephone cable laid only 10 years ago.

Telesat Canada will commence operation soon of the world's first commercial domestic communications satellite system, capable of providing telecommunications services, including television, generally throughout the length and breadth of our country. One of Telesat's major earth stations shares this Lake Cowichan site with COTC's international station. Telesat's ANIK I, the first domestic satellite in geostationary orbit, will be launched a few weeks from now.

Our Communications Technology Satellite being developed at our Communications Research Centre in collaboration with Canadian industry and NASA, will be the most advanced experimental satellite in the world when it is launched in 1975. An operational satellite system based on this technology could well bring live television programs and telephone services directly to the smallest communities in the remotest parts of Canada in the next decade.



These Canadian initiatives follow our Alouette and ISIS experimental satellite programs which placed Canada among the leading nations in space communications research. This week we will be celebrating Alouette's 10th birthday and Canada's 10 years in space.

But now, we are about to enter a new era in our international communications and our role as a Pacific nation. In a few minutes, if this earth station and the satellite work, I will speak with Australia's Minister of the Interior, Hon. Ralph Hunt, to inaugurate the COTC's Pacific satellite service. The pleasure will be all mine, because in Australia at this moment it is 5:30 a.m.

It is now my great pleasure to declare this COTC Lake Cowichan earth station officially open, and to make the first call through it -- and 45,000 miles of space.



100-1014  
100-1014-101

Notes for remarks  
by  
HON. ROBERT STANBURY  
MINISTER OF COMMUNICATIONS

at  
Ceremonies commemorating  
the  
TENTH ANNIVERSARY OF THE  
LAUNCH OF ALOUETTE I  
at the  
COMMUNICATIONS RESEARCH CENTRE  
SHIRLEY BAY, OTTAWA

11:30 a.m., FRIDAY, SEPTEMBER 29, 1972.

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We are here to celebrate a birthday -- the tenth birthday of Alouette 1 -- and to commemorate her technological achievement as the longest-lived satellite in space. To be an old girl at 10 is no cause for dismay among satellites, but a source of great satisfaction, particularly when one's life expectancy at birth varied from ten minutes to one year.

This is a day of celebration for Canada, and we are pleased that so many are sharing with us this observance of our first decade in space. It is appropriate, because space belongs to no nation, but to mankind, that eleven countries have worked together in our Canadian Alouette-ISIS program. I welcome the presence of their representatives here today, as well as of so many Canadians who have been responsible for our achievements in space. I thank you all for your presence and your contributions to the knowledge gained during this past decade for the benefit of all mankind.

Our closest neighbour has been our closest collaborator and I would like to express our particular appreciation to the National Aeronautics and Space Administration of the USA. NASA has been our partner in the Alouette - ISIS program of scientific satellites for almost 14 years. We have worked together so closely and effectively that NASA's contribution can be truly called immeasurable. NASA has launched the satellites that we have built. It has contributed much of the data acquisition through its chain



of telemetry stations. It gave us essential technical advice and information, which was of particular value during the first years of Canadian satellite activity, because at that time our Canadian staff was relatively inexperienced in the design of space hardware.

We owe a debt of deep gratitude to many agencies of many countries who have worked with us in this cooperative scientific program. They have constructed and operated telemetry stations, processed and distributed data and, by their efforts in data analysis, have greatly extended the scientific knowledge of the near space environment. These agencies include:

National Oceanographic and Atmospheric Administration (USA)

Air Force Cambridge Research Laboratory (USA)

Department of Defence (USA)

University of Texas (USA)

Stanford University (USA)

Centre National d'Etudes des Télécommunications (France)

Centre National d'Etudes Spatiales (France)

Groupe de Recherches Ionosphériques (France)

Radio and Space Research Station (U.K.)

Ionospheric Prediction Service (Australia)

Norwegian Defence Research Establishment (Norway)

Department of Scientific and Industrial Research (New Zealand)

Radio Research Laboratories (Japan)



Physical Research Laboratory (India)

Max Planck Institut fur Aeronomie (Germany)

University of Hong Kong (Hong Kong)

We are grateful, too, to all those Canadian agencies and companies associated with the program.

Our Communications Research Centre, when Canadian satellite activity began, was part of the Defence Research Board. The CRC has greatly benefitted from the vision of DRB senior staff, and from help provided by sister establishments in DRB.

The National Research Council has supplied experiments for all the Alouette - ISIS satellites, and has backed these experiments with highly skilled technologists and experts.

From the beginnings of our satellite activity, Canadian industry has played an important role. Much of the task of modifying the back-up spacecraft of Alouette I into Alouette II was carried out in the laboratories of RCA Canada. Spar built the structure for the first Alouette and developed its long antennae. Sinclair Laboratories worked on Alouette's antenna electrical design. The ISIS I and ISIS II satellites were constructed by RCA in Montreal with the assistance of Spar Aerospace of Toronto as associate contractor.



The contribution of our Canadian universities also played important roles. The University of Western Ontario, York University and the University of Calgary undertook experiments that greatly enhanced the scientific value of the ISIS satellites.

The Alouette-ISIS program has made contributions to science in the general areas of geophysics, radiowave propagation, plasma physics and space technology. The enormous store of data obtained by these satellites will be valuable for scientific and communications engineering studies for years to come.

We can be proud of our achievements, and we are. But the future is ever more present in communications technology, and it is there our challenge lies.

In an era when technology and its pace of change have the potential to wreck society or help reform it, a prime goal of any government must be to see that all citizens, to the fullest extent possible, benefit from the new technology rather than suffer from its effects.

This was vital among the considerations which led our government to create a Department of Communications. Its chief purpose is to ensure that the evolution of communications systems is channelled to meet the needs of society. Consequently, two of the main goals we





have established are to achieve the orderly development of communications in Canada and to make its potential benefits available to all Canadians.

One of our most important projects is seeking the means of providing better communications to small isolated communities, which may consist of only a few families, effectively cut off from the rest of Canada and the world. At the present cost of hundreds of thousands of dollars, a satellite earth station is not feasible for every community. So a gap exists between the socially desirable and the practicably attainable, and we are concentrating on finding the means to close that gap.

The costs of receiving terminals can be greatly reduced if the effective radiated power from the satellite-borne transponder can be increased. This is the object of the continuing collaboration of Canada and the United States in our Communications Technology Satellite program -- to learn about the operation of high-power transponders in satellites. In this quest we have been recently joined by the European Space Research Organization, which is providing the solar cells to power the spacecraft and some of the components for the transponder.

The organization of the CTS program is parallel to that tested and proven in the Alouette-ISIS scientific satellite program. A CTS Working Group has been set up. Canada is building the satellite and the USA will launch it. The USA has undertaken to supply the high-power transmitter experiment package and, as before, is providing the



spacecraft environmental testing in preparation for the launching. The technical challenge to coordinate these activities on both sides of the border is considerable, because this program takes Canada into areas where we have not been before and confronts us with problems that have yet to be solved by any nation.

The Communications Technology Satellite is an experimental, rather than an operational, satellite. If it is successful, the benefits will be realized in later generations of operational satellites. It is expected to be the first high-power satellite operating in the 12 to 14 Gigahertz frequency bands. The high power will permit communication between relatively small transportable ground terminals. In this program we are exploring the sociological as well as technological benefits to Canada of communications satellite technology.

For example, one-room schools in remote regions could be integrated into the educational systems of large cities. People in small communities with an eight-foot antenna could receive educational television transmissions and work with urban instructors through two-way voice channels through CTS.

Then there is the potential of national "barefoot programming". Cable television companies are being encouraged to foster the use of their facilities by citizens for programs of local interest or urgency in their communities. By means of CTS, such local programs could be economically relayed from one end of the country to the other, enhancing mutual understanding among regions and widening the horizons of individual expression at the community level.



Public and private organizations will be invited to participate directly in the CTS program, for the purpose of evaluating the potential role of satellite communications in the Canada of the future.

It is our hope that CTS will become, like Alouette and ISIS, a shining symbol of achievement and cooperation in space research. It is another step toward the new world community which effective use of communications technology can make possible.

Buckminster Fuller said: "Humanity can afford to do anything it needs or wants to do, and cannot afford anything else". Canada needs and wants the best communications available, for all its citizens. Our existence, our national integrity, depend on communications. With Alouette and its successors we have made a long leap forward for Canada and for humanity.

You have served us well, Alouette. Happy birthday.



"COMPUTERS, PRIVACY AND POWER"

Notes for a speech

by

HON. ROBERT STANBURY

MINISTER OF COMMUNICATIONS

to the

CANADIAN INFORMATION PROCESSING SOCIETY

(Victoria Section)

7:30 P.M.

October 4, 1972

Faculty Club, University of Victoria

Victoria, B.C.

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A little more than a year ago, Prime Minister Trudeau asked me to take on responsibility for the portfolio of Communications. It was an assignment that I accepted with pleasure because of the challenges involved, but also with some trepidation at being immersed with my background in law and journalism in a highly technical, highly professional and highly complex field.

The disadvantages of being a layman among experts are obvious enough. One benefit, I think, is that it is easier for a layman to stand back, hopefully not so far back as to slip out of focus, and catch patterns to events that someone intimately involved in them might miss.

I find very striking, therefore, some of the changes that have come over the computer industry during the very short time that I have been acquainted with it. The first change I would describe as a return of confidence. Early in 1971 the industry was recovering from the collapse of the bull market in the shares of the rash of new computer companies, particularly of computer service bureaus. Today that industry has stabilized. Those who jumped in, in the late sixties, with a hope, a prayer and a rented computer, are out; those who got in with ideas and a sense of marketing have survived and are getting stronger --among them, I am happy to note, several relatively small but highly-innovative Canadian-owned companies.



The second change, one in the opposite direction, I might label the end of over-confidence. The turn of the decade was a time of easy rhetoric--about MIS systems that were going to transform even the most inefficient of companies, about instant post-industrial societies and computer terminals in every home. Computers had become so glamorous that many customers were buying not computers but glamour. The industry, and the customers, now have a far clearer and sharper idea of what computers can and cannot do, and how to exploit them in the most cost-effective manner. The Seventies have been labelled, in computer terms, as the "decade of the user". Throughout the industry more and more attention is being paid to user needs, to software rather than to new hardware, to servicing rather than to selling.

One thing that hasn't changed, and here your perspective is every bit as sharp as mine and probably more impatient, is that in several key areas government has not yet figured out what to do with, or about, the computer industry. We have, though, made measureable progress. The right questions, I think, have been defined; so also have been a range of answers, and these possible answers are now being evaluated.

Two years ago, as all of you here know, the Department of Communications initiated, through the independent Canadian Computer/Communications Task Force, a major and comprehensive



inquiry into that new class of systems and of business enterprises known variously as computer utilities or tele-processing systems. Whatever they are called, these undertakings involve a marriage of the long-established, though constantly changing, communications systems with the relatively new and far from fulfilled industry of data processing.

The report of the Computer/Communications Task Force, Branching Out, was published in the first week of August. The report estimated that the industry, valued at \$1 billion today, will grow to \$4 billion by 1980. It identified a number of immediate and critical decisions facing the federal government, on issues such as the relationship of common carriers to independent service bureaus, inter-connection and third-party multiplexing, and made specific recommendations for their solutions. We are awaiting the comments of provincial governments, of users and of the industry, and meanwhile within government a comprehensive evaluation of the report is underway. In fact, the first meeting of senior officials from all the departments concerned was held two weeks ago. I emphasize particularly the interest of the provincial governments because there is no clear jurisdictional pattern for handling many of the issues we have identified. On the basis of the comments received, and of our own study of the Task Force report, we expect to be able quite soon to reach concrete policy decisions.



In the meantime, a parallel study has been underway. For me, as a layman, it is somewhat easier to relate to, although its subject matter is perhaps even more complex than that of the Computer/Communications Task Force.

In April of 1971, the federal Departments of Communications and of Justice established jointly a special Task Force on Privacy and Computers. That body has completed its work and its report should be published, depending upon the speed of the printing process, this month or next.

This report, will in some ways constitute a landmark. It represents an attempt to describe, analyze and evaluate a social issue before that social issue has degenerated into a crisis. By way of comparison, I think it is evident that the environmental pollution crisis was recognized, and responded to, far too late. The privacy issue, although it is attracting increasing attention and concern, is not yet a crisis, nor is it out of control. It could spring out of control unless we recognize and come to terms with what we are doing in building ever more efficient information systems -- computerized or not -- which store more and more personal information about individuals, often without the knowledge of the individuals concerned, and then using that information for purposes of which the individual may be unaware and over which he has little or no control.





The origin of the computer privacy issue can be traced back to 1965, when a proposal to build a National Data Bank came before the United States Congress. It turned out that no thought whatever had been given to the question of privacy protection in the design of this data bank, and the proposal was rejected. For the first time privacy, in terms of information systems, had become a social and political issue.

Today the subject is under study in virtually every western country. A Swedish Royal Commission has just issued a report, as has the Younger Committee on Privacy in Britain. In the United States the results of a major inquiry undertaken by the National Academy of Sciences should be published in the next few weeks.

A major conference on privacy, the first of its kind in Canada, was held at Queen's University in May, 1970, as part of our Telecommission inquiry. It was co-sponsored by the Canadian Information Processing Society with the Departments of Communications and of Justice. An excellent speech on the subject of computers and privacy was delivered recently in Toronto by the President of IBM Canada. The consciousness of this social issue is developing, and I hope that our Task Force report will contribute much to the recognition and resolution of the problems while they are manageable.



The Privacy Task Force's work was divided, broadly, into three areas: descriptions, analysis and evaluation. The descriptive phase, which absorbed the main effort, amounted to an attempt to detail who collects what types of systems, for what purposes. Site interviews by two or three-man teams, comprising always a computer scientist and a lawyer, were conducted with the operators of 42 of the largest data banks in the country, both public and private and of all types, financial, credit, medical, travel, and entertainment, welfare and so on. An extensive questionnaire, of 72 questions, was developed and mailed to some 2,500 operators of data banks, of all types and sizes. The replies to this questionnaire constitute the main source of data for the Task Force. Letters were sent also to the operators of 13 data banks in the United States which store personal information about Canadians. Briefs were requested from all interested associations, both industrial and professional.

Among some of the general conclusions derived from these empirical studies were that personal information systems appear to contain more errors than is generally recognized and that most institutions store their most sensitive information in manual rather than automated systems, though this is changing.

The analysis phase constituted two parts. The first was technical. A study was made of the particular problems of security in information systems, and the general conclusion was



that traditional security precautions, in terms of personnel selection for example, are at least as important if not more than sophisticated systems of locks and passwords. A study was made also of the likely future trends of computer technology and how these might impact upon the operation of information systems. Among trends discerned was the tendency of computerized systems to centralize the storage of data, and therefore to centralize decision-making, with a concurrent and contrary trend toward a dispersal of access to the data base through remote terminals. An analysis was made also of the state of existing law in respect of privacy, to determine how much protection might already exist. It appears that although Privacy Acts have been passed recently in Manitoba and British Columbia, and while a proposed federal Protection of Privacy Act in respect of electronic eavesdropping was brought before the last Parliament, the law of privacy remains underdeveloped.

The evaluation phase of the Task Force study was concerned with an assessment of a range of possible responses or remedies to the threat, actual or latent, of invasions of privacy. These include a form of self-regulation by the industry like the Code of Ethics developed by the British Computer Society; the kind of Ombudsman or Data Commissioner established by some states in the Federal Republic



of Germany; a surveillance agency as proposed by the Younger Committee in Britain to monitor developments which might impact on privacy but wielding no enforcement powers; and a formal regulatory body or tribunal.

Until the report of the Task Force is published, it is difficult for me to make more than general comment on its subject matter. However, in any study of privacy in relation to information systems, one fact stands out. It is institutions which collect data; it is individuals about whom the data is collected. And between these two parties there is a clear imbalance.

Institutions decide what data they need, and the purposes for which it is needed. Individuals often don't know that data about them has been collected; they do not know what is in their files; they do not know who has the right to see the data nor the purposes to which it is put. It is not surprising then that a number of authorities have proposed that individuals be given a right of access to their own files, so they can correct any inaccurate information in them, and a right to know the uses to which information about them has been put.

This question of a right of access by individuals to information held about them opens up a broader issue. The fact is that much of the debate about privacy and computers has less to do with privacy as we commonly understand that term than it has





with power. With a balance of power that is, between individuals and institutions. And in this context, ironically, it is individuals who are challenging the privacy of institutions. The debate is rooted in the oft-observed relationship between information and power. Those with information can make decisions that influence the lives of others without access to that information, who lack the means to, in effect, argue back.

The collection, storage, processing and distribution of accurate information is central to our economic and social well-being; our society could not run without information, or could run only at a much lower level of efficiency and of affluence. Yet that same information is, or can be, power. It can enhance the power of institutions at the expense of individuals; it can make individuals more susceptible to manipulation and to enforced conformity.

In political terms, a central fact about computers is that they have been used almost exclusively by established institutions, for the obvious reasons that they are expensive and difficult to operate. To the extent that these institutions become more efficient through the use of computers, they could exploit this increased power to the detriment of individuals. And nowhere yet have computers been made available to members of the general public to benefit directly from their services.



The established communications systems, newspapers, magazines, radio and TV broadcasting, all serve the general public directly, and indeed all attempt to reach as wide as possible a proportion of the public. So do public libraries, and they are open to anyone without direct charge. In contrast, because of the enormous difficulties of organizing and indexing the data base and of the high costs of up-dating data, no computerized information system exists which directly serves the public.

One of the recommendations of the Computer/Communications Task Force was for the allocation of funds to computer-based projects of general social significance, and this is a recommendation which personally I wholeheartedly support.

In this past year as Minister of Communications, I have enjoyed my association with the information processing fraternity and I have acquired at least the bare essentials of your language. As it may not be long in acquiring status as another of our official languages, perhaps I could use it in conclusion to summarize our government's current position in the evolution of federal policies in respect of the computer industry.

We are now completing the "in-put" stage. We will be processing the data during the next few weeks. Shortly thereafter, very shortly, we will arrive at the only stage that ultimately matters, that of "out-put". I hasten to add, in view of imminent events, that "out-put" here refers to government policy, not to the government itself.



OBSERVATIONS  
CANADIAN COMPUTER/COMMUNICATIONS  
SOME OPTIONS FOR THE FUTURE

NOTES FOR A SPEECH

BY

HON. ROBERT STANBURY

MINISTER OF COMMUNICATIONS

TO THE

CANADIAN INFORMATION PROCESSING SOCIETY

(VANCOUVER SECTION)

7:45 P.M.

OCTOBER 5, 1972

SHERATON PLAZA 500 HOTEL

VANCOUVER, B.C.



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Last night I spoke to the Victoria Section of your Society. Tonight I appreciate your invitation to be here. During the past year it seems a high proportion of my speaking engagements have been with groups like yours. So much so that you might suspect I am beginning to feel a bit like a Minister of Information Processing, which in fact I am not and have no desire to be.

Information processing can be the domain of no single department of government, of no single Minister and of no single government. It must be a resource, and a concern, of all. In the Government of Canada it is. Several other ministers, as much as I, have a deep and active interest in your field -- the Minister of Industry, Trade and Commerce, the President of the Treasury Board, the Minister of Supply & Services and the Minister of State for Science & Technology, to mention only a few most directly concerned.

We are a government determined to help Canadians master the future with a comprehension of its potential and ingenuity to grasp it. That was our motivation for creation of new departments like Communications, and Environment and the Ministry of Science & Technology. Information is the fuel for such comprehension and ingenuity. And Canadian information is essential to Canadian decisions and solutions.

It is the transmission of information and particularly the means of transmission, which is my central concern as Minister of Communications. I have no ambition, therefore, to be Minister of Computers or Czar of the Canadian computer/communications industry -- which is, in fact,





not a single industry at all but perhaps should be called a community. Even the computer industry can hardly be described as one. There is unquestionably a community of interest, although certainly not an identity of interest, in these fields. And both, or I should say all, are of vital importance in the concerted impact they will have on Canada's future.

It would be difficult to overestimate the social significance of the computer-based services which can evolve through the use of communications facilities, and the effect of computer advances on communications will be no less than that of communications technology on the computer environment. Computer/communications can spread computer power into many -- and ultimately perhaps all -- of the industrial, commercial, administrative and social aspects of our lives.

The public policy questions this raises are legion, because computer/communications is very much a mixed marriage. The computer industry operates in an environment of free and open competition. Communications facilities, on the other hand, are in many essential respects monopolistic. In the middle ground between them is the computer service industry -- the dynamic, evolving, mainly entrepreneurial activity in which most of the growth is going to occur. And advancing from opposite frontiers into this everyman's land are the highly competitive computer hardware suppliers and the publicly regulated communications carriers.



It is not surprising, therefore, that "computer/communications" was identified as a major policy issue of the future by the Telecommission, which was a general survey undertaken by the Department of Communications on its inception. It is appropriate that an independent task force was formed to give this community intensive study; that its report, Branching Out, was published promptly when completed, and that decisions on its recommendations be taken with as little as possible delay after full opportunity for comment by all concerned.

The period of two months for feedback on the report of the Canadian Computer/Communications Task Force has been extended to November 6, and I hope you will ensure that we have your views by then. Meanwhile, work is proceeding within the federal Government to gather departmental opinions, examine those received from outside and evaluate the policy and administrative options put forward by the Task Force. Our aim is to develop Canadian policies, based on insight into Canadian challenges, gained through thorough consultation with Canadians, at the earliest possible date.

Our Government attaches the utmost importance and priority to this area of policy development. In announcing the formation of the Task Force my distinguished predecessor said that the objectives of a national computer/communications policy should include:

"achieving the most rapid expansion of services and systems that is possible without unduly disturbing our ability to meet other urgent social priorities; ensuring the widest



possible range of services to all social and regional groups in every part of Canada; ensuring adequate Canadian control and ownership; ensuring that the overall system design is flexible enough in concept and implementation to minimize of obsolescence and permit the rapid incorporation of improvement resulting from technological change; ensuring adequate protection for privacy, right of access and freedom of speech in all elements of the national system."

Those objectives still seem to me to be valid. If we can agree on them, we must ask ourselves whether it will be possible to achieve them without positive action and leadership by government. The Computer/Communications Task Force appears to have had serious doubts. It pointed out:

"present canadian needs are being met by a great variety of unrelated actions and systems, mostly (90%) confined to in-house operations of business, industry and governments. This fragmentation leads to economically unsatisfactory operations; to financial instability of commercial computer service enterprises; and adds to the attractiveness of more sophisticated and perhaps less expensive offerings from the United States. In the light of the growing economic and social significance of computers, this should be seen as a disturbing situation, with increasingly serious implications."

It seems clear that the penalty for passivity on the part of government would be paid in terms of national sovereignty, employment for Canadians, cash outflow and balance of payments. Consequently, I foresee a role for government, at all levels, to include the setting



of goals consistent with the considerations I have just mentioned and the adaptation of rules and regulations to which some of the industries concerned are subject. I would also expect some of the entrepreneurial action to be undertaken by governments, in areas of more social than commercial significance, such as those falling generally within the fields of training and education.

I mentioned earlier the important service industry lying between the sources of computer hardware on the one hand and the basic communications highways on the other. If the accent is on a national system of computer communications, this is a crucial area for well-planned and timely action by government. It is also, because of the ramifications into many policy areas well removed from communications, the most difficult to come to grips with. The Task Force has discussed, for example, the natural qualifications for entry into the service industry of the computer manufacturers, the communications carriers and the universities. It has also pointed out the trend for major industries, having developed the internal resources to plan and implement computer-based solutions to their own problems, to find themselves with an invaluable and marketable resource to offer to other, parallel types of commercial operation. The banks through the fundamental way in which they enter into all industry and commerce, and because of their resource base, are prominent in this category. We are already beginning to see the emergence of retail point-of-sale terminals, and the extension generally of this trend into on-line







cash and credit services is to be confidently anticipated.

I must emphasize the wide-ranging complexity of this whole question of the service industry. Each of the groups I have mentioned as claiming qualifications to enter the field -- the computer firms, the carriers, the universities and major specialized users such as the banks -- raises a special set of problems, some remote from immediate issues of either computers or communications. The Task Force has defined these problems and put them in perspective, and they now demand a major effort in policy analysis by Government.

In the second major policy area, which concerns the use of national communications facilities for computer-based services, we can at least identify the agency having (almost) the sole responsibility. It is possible to pose one basic question which is the key to policies affecting the communications carriers: should it be a major objective to see established a national system of data communications highways on which the existing and future computer-based services might travel, and which, like the transportation highways, are free to be used by the purveyors of many kinds of services to obtain access to their customers? The Task Force answer to this broad question is affirmative; that the environment for a competitive computer/communications service must be created and maintained.

The essential nature of the policy problem then becomes one of devising and amending the rules under which the national communications networks have carried the traditional telephone and message traffic for which they were designed. The Department of Communications has a clear



responsibility in this area, and the computer/communications issue brings into focus some basic issues of carrier policy. The comments of the carriers as well as of users and governments on the Task Force report will be of great service if they indicate some forms which policies might take to achieve the aims recommended while protecting the carriers' ability to carry out their essential responsibilities.

No natural monopoly base can be said to exist for data communications in the way that it exists, for example, for the telephone service. However, it seems commonly recognized that Canada is reasonably well served by the communications carriers' traditional voice and message facilities, and a data communications system generally accessible to the purveyors of computer-based services must be achieved with the minimum of interference with the existing pattern of carrier facilities and institutions and with full protection for the operational and commercial integrity of the traditional services. Inevitably, however, we face in the special context of data communications some familiar problems, such as interconnection between networks, the attachment of non-carrier terminal equipment, switching and multiplexing by the operators of non-carrier services. It may be that the concept of a communications common carrier may be noticeably modified as we strive to achieve major policy goals, at an acceptable economic cost, through the maximum utilization of existing plant resources.

The policy problems would undoubtedly be simplified if it could be readily shown that a completely new system of data communications needs to be created. The Science Council has pointed out its advantages.



However, no country appears to foresee any more clearly than the others the detailed form and state of development of the computer-based services which will be commonplace 10 or 15 years from now. So there is a universal disinclination to plunge into the major capital commitment which a radically new national communications network would represent. In their move toward digital transmission and switching for general purpose trunk facilities, the Canadian telecommunications carriers appear to be embarking on a well-conceived long-term plan which could be entirely consistent with national goals and could provide advanced transmission facilities upon which to develop the data communications services which the market will eventually demand.

A third policy area to be considered is that of the social services based on computer technology. These services might be seen to have two important characteristics: they will in general require government initiative to bring them into operation, and they could well be the vehicles for bringing computer/communications directly to the ordinary citizen in his home rather than via the administrative and business environments. The planning of individual services in this category will undoubtedly be of interest to the appropriate agencies of government concerned with legal, medical and consumer services, for example.

There is also a clear need for policies as well as for machinery to coordinate programs which will inevitably use common techniques and resources. Among the central policy issues will be the need to maintain equity of service and opportunity across the country, and the importance in these services of Canadian ownership and control. Furthermore,



many of these systems will fall within a broadly educational context, and their readiest means of access to the public at large will likely be the cable television distribution systems. You can see the far-reaching nature of the policies with which we are concerned.

The institutional aspects of the matter are not the least of our concerns. The penetration of the computer into the social and economic fabric of society is likely to be so complete, in practice, that I remain to be convinced that computer/communications can be treated as a single area of policy administration in any government. The Task Force has recommended the establishment of a central group within the federal Government to monitor developments in computer/communications and to ensure that federal policies are implemented and developed as required. This is easier said than done. I am very conscious that it involves the functions and responsibilities of many agencies of government, and of government at more than one level. Thus, the institutional challenges could be among the most difficult and crucial with which we must struggle.

We will struggle with these issues as a matter of high priority in the second Trudeau administration, as we have worked to isolate and define them in the first. We will seek to build policies for Canada on a foundation of knowledge, understanding and foresight of Canadians, in and out of government. For myself, I hope to be in, and I will be looking forward to your continued help.





NOTES FOR REMARKS

BY

HON. ROBERT STANBURY

ON THE SIGNING OF A  
CONTRACT BETWEEN TELESAT  
CANADA AND BELL CANADA

AT

FROBISHER BAY, N.W.T.

OCTOBER 13, 1972

FOR RELEASE ON DELIVERY



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Today marks a major step in Canada's transition from a terrestrial to a satellite technology in Communications. It also heralds a significant improvement in the communication system of the Northwest Territories and Yukon.

Until now, the problem of a widely-scattered population existing in a harsh environment has been a formidable handicap to the full growth of northern communications. In small communities spread thinly over vast distances, high installation and operation costs have made it very difficult to establish satisfactory services, particularly in the Baffin and Keewatin regions, where reliable telephone, radio and television services simply are not available.

Because the federal government and our Department of Communications have been acutely aware of the urgency of finding methods of resolving this situation, we have given high priority to the improvement of northern communications. In an early analysis of the main communication problems existing in the north, we selected three principal targets to be achieved in cooperation with the common carriers:

- (1) Establishment of broadband trunk lines between centres in southern and northern Canada, to provide fully integrated national telephone and data services;
- (2) Installation of transmission facilities to carry network-quality radio and television programs to all permanently populated northern settlements;



(3) Provision of the necessary switching and local distribution facilities for easy access to the national telephone networks and point-to-point communications between northern settlements.

This program, to put it mildly, is an ambitious and demanding one. There is no easy road to fulfillment, particularly since distance and climate rule out conventional technical solutions. It is simply not economic to extend terrestrial networks to the tundra regions of the north. On the other hand, it is out of the question to deny northern Canadians adequate telephone and broadcasting services.

Telesat Canada's communications satellite, Anik, offers the only economic and technical means for bringing our national telephone and broadcasting networks into the north. I confidently expect that Anik will be launched and safely in orbit within the next month. The next immediate task will be to utilize Anik through earth stations of the type and numbers needed to provide essential telecommunication services to the northern regions.

Telesat Canada's satellite has the capacity to handle 12 broadband, or television equivalent, channels. Contracts have already been signed with the CBC for Telesat to carry live television programming to 24 locations in the North. But today our attention is focussed on two channels that will be used primarily for message services to remote northern settlements. These two channels will be used in combination with two new earth station designs for the exclusive benefit of the North.



The first of these is the Northern Telecommunications Station, now being installed at Frobisher and Resolute. However, the second new type of earth station may prove to be the best solution to the Eastern Arctic's most pressing communications requirements.

At the 1970 Yellowknife Conference, sponsored by the Department of Communications, the first priority identified by the native people themselves was the establishing of a highly reliable point-to-point telephone service throughout the north. This requirement has been uppermost in the minds of all those who were concerned with the system design of the "thin route" stations.

A series of "thin-route stations" will be used to bring high quality telephone and radio service to isolated settlements in the Baffin and Keewatin regions. These stations will be systematically installed throughout the Northwest Territories in the coming years.

These stations can handle one to six telephone circuits in each community. They will give each community access to services such as Telex, TWX, teletype or facsimile and they will be completely integrated into the national telephone network. To the





average subscriber, the quality and reliability of services will be equivalent to that available in the south. Provision has also been made for the eventual reception of national or regional radio program circuits at standard CBC network quality. Even the future requirement for television has been anticipated, as electronic equipment can be added when it becomes financially possible to supply this service.

As I have said, Anik will be used to bring television and radio for the first time to the north. The ground stations for television, because they are expensive, will go first into the larger communities such as Frobisher. The ground stations able to receive radio broadcasting signals can be placed in much smaller communities.

The point has been made strongly by the Government of the Northwest Territories and by organizations such as the Inuit Tapirisat that these signals, whether of television or of radio, will be coming from the south, into the north. The flow, therefore, is one-way.

This is not good enough. The north must also be able to speak to the north, and the north must be able to speak to the south. I am pleased that now the CBC is examining possibilities for a major expansion of broadcasting service in, as well as to, the north. These could call for an increase in the amount of programming designed specifically for the north, and in the amount of programming originated in the north.



As Minister of Communications, aware that the Anik satellite will mean a dramatic change in the quantity of communications in the north, I have been concerned particularly about the quality of these communications. And this includes the concern that communication starts in the north as well as ends here.

One specific program to this end which we have initiated this year is our Northern Pilot Project. It involves, in the Keewatin, the construction of a five-point radio-telephone network to be owned by and operated by the people of Baker Lake, Rankin, Eskimo Point, Chesterfield and Whale Cove. We have just installed a similar system, owned and operated by the people themselves, in Northwest Ontario. In Baker Lake we are, with the CBC, developing a community radio broadcasting station. I took personal pleasure in the comment by Mr. Don Ingram, president of the Baker Lake Radio Committee, when he applied for a licence, that if Baker Lake learned how to operate a community radio station then maybe its people could teach southern communities how to do it. Also, in Rankin Inlet, the CBC and our Department, together with Bell Canada and Bell Northern Research, are developing the second phase of the Comminterphone Project.



All of these projects I have just mentioned, represent, along with the Tuktoyaktuk Radio Station, a demonstration that the people of the north are interested -- not just in getting radio or television but also in giving radio and television; not just in being receivers of programming but also in being creators of it. The work that is being done here at Frobisher Bay, in radio broadcasts and in video-tapes, is another demonstration of this.

For these reasons, I believe the signing of today's agreement between Telesat and Bell Canada represents a double step forward. It represents on the one hand a dramatic improvement in basic, life-support communications to the north. It represents also a catalyst which forces all of us in the south to look at the communications needs of the north with fresh and self-critical eyes. The CBC pioneering with its shortwave Northern Service, its Frontier Package and its stations such as those here in Frobisher and at Inuvik, has served northerners well within the limits of current technology. So have Bell Canada in the east and CN-CPT in the west, in providing a quality of communications that the economy alone could not justify. It is only since the advent of Anik and the CBC's program to extend service to all communities of 500 or more, that governments have faced up fully, or have had the means to do so, to the communications needs of the north. Your communications needs will not be resolved overnight, simply because a satellite is shot into the sky. But that satellite represents a critical step forward, and other steps will follow.



Notes for the

BOLAND MEMORIAL LECTURE

by

Hon. Robert Stanbury, P.C., M.P.

MINISTER OF COMMUNICATIONS

to the

14th ANNUAL

UNIVERSITY OF WINDSOR SEMINAR  
ON CANADIAN AMERICAN RELATIONS

at the

UNIVERSITY OF WINDSOR, WINDSOR, ONTARIO

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FOR RELEASE ON DELIVERY



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It is customary, mandatory almost, for speakers to begin their remarks by saying how pleased and honoured they are to have been invited to speak. In my own case those emotions are mixed with relief at being here at all at least in my current capacity. I notice that the sub-title of your seminar is "A Crossroads Decision for North Americans". Just over a fortnight ago the north- North Americans reached a crossroads, and from my point of view far too many of them took the wrong fork. I also feel a certain discomfort because we had hoped to publish this week, in time for this conference, the report of the Task Force on Computers and Privacy, undertaken by my Department together with the Department of Justice. However, we could not quite achieve such a tight printing schedule, and publication of the report remains a fortnight or so away. I wish it could have been otherwise, because comments at this conference on the contents and conclusions of the Task Force report would have been of great value to us. Still, I hope each of you will read it and react to it. Tonight, without scooping the report, I will try to give you an idea of some directions taken in this study in the hope that they may at least serve as points of provocation for your deliberations.

Having made those confessions about my state of mind, I hasten to add that I am indeed honoured to have been asked to give the Boland Memorial Lecture in this the 14th annual Canadian-American Seminar. I am particularly struck by the title chosen for the Seminar: "Information Processing and the Right to Privacy". It is, in fact, a better title than that of our own report, "Privacy and Computers". Computers may magnify the problem, and as a symbol of modern technology serve to attract attention to it, but the core issue is not that of machines but that of information, and how it is processed, stored, distributed and used.



In one sense the subject of information and privacy may seem to stand apart from the topics normally selected for the Canadian-American Seminar Series. These subjects, your brochure says, "have attempted to isolate the causes which alienate the two countries as well as to explore the common interests which bind them together". Privacy, or the lack of it, is not an issue that alienates Canadians from Americans, or vice-versa; nor is it an issue like the control of pollution where the commonality of interests between our two countries is self-evident.

Privacy is a relatively new issue, not easily defined, not yet clearly crystallized as a subject of overwhelming common concern, yet causing disquiet, unease, a kind of motion beneath the surface, looming every now and then into public consciousness.

It was only in 1965, on submission to the United States Congress of a proposal to establish a national data bank, that privacy broke to the surface as a public issue. The developments since then have been dramatic and, I think, instructive. Today virtually every western country is studying the issue. This year reports have been issued in Britain by a Special Committee established by Parliament, in Sweden by a Royal Commission and in the United States one by the National Academy of Science, to be published at the end of this month, with a further extensive public inquiry being conducted under the auspices of the U.S. Department of Health, Education and Welfare. Our own report is hot on, if not quite yet hot off, the presses.



Finding Sweden in the list is particularly interesting. That country, as you know, has had a long and proud history of freedom of information: in essence all information is available to the public, including income tax returns, unless the government can demonstrate a specific need for confidentiality or secrecy. Canada, Britain and the United States, on the other hand are all countries with strong civil libertarian traditions. Yet all four countries, together with others whose studies may be not so advanced or less ambitious in scope, have found it necessary to address themselves to the same issue as this Seminar -- the impact upon privacy of the flood of data which our societies have come to regard as essential to their state of affluence, and which modern information technology has made it possible to handle and to process.

And here the dilemma begins to reveal itself. On one hand, the more information that is collected about people the more vulnerable they are to invasions of personal privacy, and more vulnerable also to manipulation by the institutions or corporations which own that information. On the other hand, information must be collected if our type of highly complex society is to run efficiently, or at all. Just behind this dilemma is another one. Information is linked to power. That is why the Telecommission inquiry into telecommunications, organized by the Department of Communications some two years ago, identified access to information as a cardinal principle for the development of communications systems. "Access" can be translated into "a right to know" or "freedom of information", ideals that may seem to conflict with the ideal of privacy of information. Putting the dilemma



in its starkest terms: to intrude upon an individual's privacy is to restrict his freedom, yet measures to protect privacy may involve interference with the free flow of information.

These ideals or goals do clash. So also is there a potential contradiction between society's need to acquire information, for planning, administration, research, and the risk of harm this collection of information may cause to individuals. The solution -- easy to state in broad terms but hard to apply in the specific -- clearly lies in balance, in protecting privacy where it is threatened without interfering with the flow and acquisition of information as such.

To pose this objective -- a balance of interests or goals in those terms -- may seem to be stating the obvious. Yet even in that seemingly innocuous principle lurks a forward step of great magnitude in terms of public policy decision-making. It rests on the assumption that privacy is important, that it is worth protecting, and that the efficiency of data banks must be weighed against the social, political and psychic costs of ignoring individual privacy.

Our Task Force devoted a considerable portion of its effort to an examination of the social and legal origins of, and the utility of, privacy. It seems glib to talk of a "privacy imperative" in humans comparable to Ardrey's "territorial imperative". Yet the costs of an absence of privacy are unmistakable: without a private space of his own an individual cannot develop his own personality; He is defenceless against pressures to conform; he is subject to manipulation. The Younger Committee in Britain studied this question in some depth and concluded that grounds did not exist for





establishing a right to privacy in legal terms. Here our Task Force differed. It does not conclude that a need is proven for a legal right of privacy, but it does suggest, in necessarily preliminary terms, the value of the concept of an "essential core of privacy" for each individual, inseparable from his or her human dignity, which could serve to guide the courts and as a philosophic basis for specific legislative acts by governments. A "privacy core" would not be a legally enforceable right as such, but rather a new presumption in favour of the individual and of his privacy -- a shield rather than an offensive weapon.

To delineate, in objective terms, the specific boundries of an individual's "privacy core" will be a task of enormous subtlety and complexity. Privacy, mostly, is in the eye of the beholder. One individual may have no qualms about disclosing his age, his income, his sex habits for that matter, to third parties; other individuals may attach great value upon keeping these things to themselves. Another dimension to this problem of definition is that the view held of privacy by the same individual may, and almost certainly will, change in different circumstances. Despite these problems and complexities, I can see great value in the notion of a "privacy core". Its formulation would, in effect, shift the burden of proof. An individual, instead of having to demonstrate why his or her privacy should not be invaded by government, corporations,



public institutions, could instead demand that these organizations justify invasions, actual or potential, of privacy, even at a cost of administrative inconvenience.

The role of the courts, while important, can be of only limited value in developing comprehensive protection. Because of the costs and delays, relatively few Canadians turn to the courts as a means to settle their grievances. Other lines of defence do exist. Statistics Canada and the Department of National Revenue are required by law to protect the confidentiality of their information; the United States has passed the Fair Credit Reporting Act and similar action has been or is being taken by some Canadian provinces; Ontario has announced it will protect the confidentiality of school records. These measures, excellent in themselves, are piecemeal and essentially unrelated.

The scope of what may be needed is suggested by some of the findings of the Task Force, for instance:

-- Far more personal information is being collected than most Canadians realize. With relatively few exceptions, most data banks do not have formal guidelines to determine what information they should collect nor how it should be used.

-- Data banks contain more inaccuracies than is generally realized. One insurance company, when it transferred its records from manual to automated form, found errors in two-thirds of its files. Because of interchange between data banks, on an official or unofficial basis, errors can be repeated in several files dealing with the same individual.



-- Citizens by and large do not know what information is being collected about them, to what uses it is being put, or their rights of access to their own files for correction of inaccuracies or to challenge the passing on of information to third parties.

-- The role of computers is ambivalent. Early in its work the Task Force realized that the core of the problem lay with data banks and information systems rather than with machines. Yet computers, as a function of their efficiency, can increase the likelihood of invasions of privacy. They make it possible for more information to be collected, to be disseminated widely, for separate files on the same individual to be collated, for data to be centralized. The advent of computers has created pressures in some quarters for the establishment of a universal numbering system for all citizens. At the same time computers, also as a function of their efficiency, make it easier to apply privacy-protective rules -- assuming a decision is made in the first place to devise such rules.

-- One problem identified by the Task Force is of particular interest to this Seminar. Relatively large and important stores of information about Canadians are located outside Canadians borders, in the United States. There is a small reverse flow. (One American educational institution for example, deliberately located its files of campus organization memberships in Canada, beyond the reach of U.S. authorities.) This problem is not unique to Canada -- the question of the trans-border flow of information has been debated at O.E.C.D. -- but, as is so often the case it is magnified in our instance.



I do not want to suggest that because Canadian data is stored in the United States this data is more susceptible to invasions of privacy. Quite the contrary: concern over personal privacy has been much sharper in the United States than in Canada, certainly at the level of public debate, and the United States has led the way with measures such as the Fair Credit Reporting Act. Nevertheless, such data is beyond the reach of Canadian jurisdiction and its magnitude does raise questions, similar to those we have been grappling with in the field of broadcasting, concerning control and content of our communications systems.

In discussing these issues identified by the Task Force I have not said that widespread invasions of privacy are in fact taking place. It is a fact that more and more personal information is being collected -- an activity that our organized, over-organized in fact, society seems unable to do without. It is also a fact that few formal protections for privacy exist today and that most data banks are operated on the basis of commonsense and goodwill insofar as the personal privacy of individuals is concerned.

These protective barriers, while of enormous importance, are not going to be enough. An analogy can be made, I believe, with the issue of environmental pollution. For years, decades, a handful of conservationists have been warning that our environment was being destroyed. For too long their warnings were ignored. Only ten years ago, a photograph of belching





factory smokestacks which today would be a source of civic shame was too often a matter of civic pride. In both the United States and Canada we are going to have to pay staggering sums, first to control and then to roll back, the deterioration of our environment, and in some instances the damage can never be rectified.

History could repeat itself with the issue of privacy. We do not have today a privacy crisis: individuals are being hurt but the occasions of damage are not widespread. National data banks, universal numbering systems, Big Brother, all have about them the flavour of 1984. This is still only 1972.

What we need to do today, or soon, is to take the kind of steps to protect privacy that should have been taken two and more decades ago in respect of the physical environment -- that is to identify and prevent a recurrence of the worst excesses, to devise measures to predict in advance serious problems before they occur. Surely we can find the means to monitor or to regulate, not in a heavy-handed way, information systems so that, simply because they are efficient and becoming continually more so, they do not present us as a fait accompli a society in which privacy no longer exists; where virtually everything about everyone is known by some, or even all; and where individuals can no longer control their own lives because their private information space has been obliterated.



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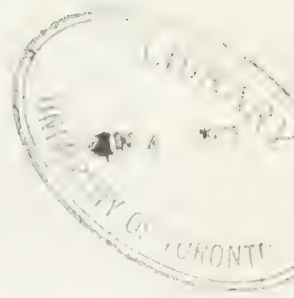
That is the crossroads at which we in North America, and most developed countries as they enter the post-industrial information-based age, have arrived. I hope I am more persuasive, and you can be too, about the right fork for our citizens and our governments to take, than my party and I were a fortnight ago.

- 30 -



December 7, 1972.

A JOINT STATEMENT BY THE HONOURABLE  
GERARD PELLETIER AND THE HONOURABLE  
OTTO LANG ON THE RELEASE OF THE  
"PRIVACY AND COMPUTERS TASK FORCE  
REPORT" PREPARED BY THE DEPARTMENTS  
OF COMMUNICATIONS AND OF JUSTICE



"At a time when the use of computers is increasing dramatically, personal privacy is a value that is becoming more and more important, and potentially more and more threatened, as institutions, both public and private, collect increasing amounts of information about individuals, store this information in ever-more efficient systems and then use this information for purposes about which the individual concerned is often unaware, and over which he often has little control.

"The Federal Government has accepted in principle, the conclusion of the Task Force that the first steps to protect the information privacy of individuals should be applied to the government's own data banks, and that specific privacy-protective rules should be developed to regulate the



data banks operated by the Federal Government. A special inter-departmental committee has been established to draft specific rules and to develop mechanisms to implement and enforce these rules.

"The Task Force identifies a need for some type of ombudsman able to intervene to ensure that the rights of individuals in respect of privacy are fully protected. This responsibility might be included among the duties of the Commissioner on Rights and Interests, being set up by the Department of Justice.

"The Task Force notes that the enormous power of computerized systems has until now been used almost exclusively to increase the amount of information about individuals held by public and private institutions, with little compensating increase in the amount of information about institutions available to the general public. To the maximum extent possible, the Department of Communications will attempt to make certain that computers and all their associated technologies are used to increase, not to reduce, the flow of information available to citizens.

"Aside from specific programs to develop data banks and information systems of broad use to the general public, there is a need for some type of mechanism or institution to monitor continuously the broad social and cultural impact of computerized systems in areas such as privacy, the foreign content of Canadian information systems, employment and the provision of useful information to citizens and to recommend specific programs when needed.

"One problem area identified in the Task Force report is that of the location outside of Canadian borders, and jurisdiction, of important data banks





containing personal information about Canadian citizens. Action may be necessary to monitor this trans-border flow of information.

"The Task Force, established by the Departments of Justice and of Communications on April 1, 1971, was made up of officials of the two departments and of outside experts drawn from industry and universities.

"The Task Force was not asked to make specific recommendations. Its principal object was to discover and report the practices and laws relating to privacy and computers in Canada today.

"To this end, the Task Force surveyed the operations of nearly 2,500 companies, institutions and government agencies in Canada, as well as 13 major United States data banks, by means of questionnaires, site interviews and requests for briefs. The results of this survey constitute the bulk of the report, while other chapters deal with current law, sociological considerations and possible regulatory measures.

"The Task Force report will be used as a resource document in developing policy on computers and privacy."



# ACT SHEET DOCUMENTATION

December 7, 1972.

## PRIVACY AND COMPUTERS TASK FORCE

### C O N C L U S I O N S

Among specific conclusions of the Task Force were:

Page 178: "It is evident that the privacy debate encompasses political as well as purely legal issues, the former arising from concern, less about a possible loss of personal privacy than from a fear that the possession by institutions of extensive and efficient information systems will enhance their ability to manipulate individuals and to induce conformity...The solutions can only be found in a more even sharing of the power made available by computerized information systems."

Page 178: "Harm may be done to individuals by the sheer volume of data gathering, an activity that can become almost an end in itself and in some instances perhaps, an elegant make-work project."

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- Page 179: "We have noted, and by implication praised, the initiative taken by the Behavioural Research Institute of York University in developing a code of ethics to govern its own activities. Such codes remain exceptions rather than the rule....The Canada Council, the National Research Council, the National Medical Research Council and other similar funding organizations might give serious attention to the possibility of developing a comparable code of ethics."
- Page 179: "Statistics Canada has authority to establish standards to be applied to statistical projects undertaken by all government departments, but this authority has not yet been exercised extensively. Consideration might also be given to the recommendation made in the recent report of the U.S. Decennial Census Review Committee that an Advisory Committee should be established as an adjunct to the statistical agency to provide ongoing advice on privacy and related matters."
- Page 179: "Among the range of possible responses, that of self-regulation by databank operators would appear to be of limited, though by no means of negligible value."
- Page 180: "An over-all concept of privacy, perhaps along the... notion of a privacy "core", might service to guide both general statutory enactments by federal and provincial governments establishing a right of privacy in law."



- Page 180: "There is no Canadian equivalent to the U.S. federal Fair Credit Reporting Act, although most provinces are considering or have already implemented measures to regulate, in varying degrees, credit bureau and credit reporting agencies. Such initiatives are of clear importance...Another field that seems to merit particular attention is that of medical and health records."
- Page 181: "The old maxim about putting one's own house in order before attempting to scrub those of others commends itself to the Task Force...A case can be advanced, therefore, that the federal government, both as a model to others and in order to provide in some degree an operational test-bed, might give serious consideration to the desirability of drawing up rules and creating instruments that could regulate databanks operated by its own agencies and departments insofar as personal privacy is concerned."
- Page 181: "An instrument for regulating government databanks might take several forms...Particular attention might be given to proposals that seek to combine the advantages of visibility (an ombudsman) with those of day-to-day effectiveness (administrative rules enforced by a central agency)."
- Page 182: "Note (has been) taken of the benefit of establishing...some form of continuing surveillance agency which would be responsible for monitoring the conduct of databanks within the jurisdiction of the government, for studying technological trends, for considering proposed new systems..and for issuing reports containing, where appropriate, recommendations for the information of the public and for consideration by government."





Page 182: "Critical policy issues are raised by these findings about the extent and content of trans-border flow of digital information...A first step which may merit serious consideration would be a statutory requirement that Canadian companies and agencies making substantial use of databanks outside the country must register with an appropriate public body."

Page 183: "As the volume of the trans-border flow of digital information grows, the need for a coordination of legislative or other responses at the international level will increase. The United Nations might provide an appropriate forum for consideration of this problem."



# FACT SHEET DOCUMENTATION

December 7, 1972.

## PRIVACY AND COMPUTERS TASK FORCE

### BACKGROUND INFORMATION

The 227-page report is the product of a task force, composed of government officials and outside experts drawn from the universities and industry. It was established April 1, 1971, by the federal Departments of Communications and Justice. In addition the two departments will make available to the public 14 individual studies commissioned by the task force. The views expressed in these individual studies belong to their respective authors but the material contained in them was used as part of the background information for the task force report itself.

The task force report is the product of a directing committee comprising A.E. Gotlieb, Deputy Minister of Communications, G.V. La Forest, Assistant Deputy Attorney-General, R.J. Gwyn, Director-General, Socio-economic Planning, Department of Communications and E.R. Olson, Director, Legal Research and Planning, Department of Justice. The report itself was written by officers of the two departments.

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The report, aside from an introduction and an appendix, is divided into six sections of which the last, "Conclusions" constitutes a summary of the main findings about the extent and nature of the problem and about the effectiveness of possible measures to provide a greater protection for personal privacy. The appendix includes the terms of reference of the task force, the questionnaire, which comprised the principal source of information in addition to site interviews with the operators of large data banks, a list of studies commissioned by the task force with a brief description of their contents and a list of "Parallel" studies being undertaken or completed recently in other countries.

A summary of the report follows:

## INTRODUCTION

Reasons for establishment of task force (following the telecommision conference on computers: Privacy and Freedom of Information in Kingston, Ont., May, 1970); general description of task force work program; list of members.

## SECTION 1. Dimensions of the issue.

Examines origins of concern about invasions of privacy; social and cultural value of privacy; role of computers in the information process; legal basis for individual claims to privacy (evolution from concept of "territorial privacy" to "informational privacy"); examines linkage between information systems and political power in terms of the balance between institutions which possess the information and individuals about whom information is collected and stored.

In general the point is made that "to a dramatically increasing extent in the complex post-industrial period" information has become the key to decision-making and that accurate information is considered



essential to economic prosperity and to governmental administration; as a consequence, information claims are being made upon individuals to an extent never before experienced. The computer, as a function of its efficiency, has hastened this process.

## SECTION 2. Empirical findings

Reports the results of replies (1,268 to a 73 question, questionnaire) mailed to operators of all types of data banks, public and private, as well as of 42 site interviews with operators of large data banks, in addition, special questionnaires were sent to operators of 14 data banks which contain extensive information about Canadians but which are located outside Canadian borders. Among the principal findings of the empirical studies:

"There is probably more data interchange (between data banks) than is generally realized by the public".

"A particular focus of concern appears to be the collection and use of information by governments."

"There is little fundamental difference in data-handling practices between governmental and non-governmental organizations." The key factor is the type of data handled (its importance, or sensitivity).

"The computer , as yet, plays only a limited role in the handling of sensitive, personal data, but that role is swiftly becoming more important." At present most organizations store their most sensitive information in manual rather than in automated systems.

"There are more inaccuracies in personal information systems than is probably generally realized." For example, 75 per cent of respondents to the questionnaire said they found mistakes in the manual records when converting these to automated systems.





On the basis of their replies to a series of attitudinal questions, operators of data banks showed a "surprising" readiness to accept some form of guidelines of regulation to protect privacy, and showed also "considerable awareness of the sensitivity to the issue."

Separate chapters in the section dealt with subjects such as those of statistical data banks, including the activities of social science researchers; administrative data banks including those of credit bureaux, insurance companies and educational institutions; a separate chapter was devoted to medical and hospital records and to banking systems, investigative agencies, including intelligence and police systems and those of credit investigative agencies; a final chapter examined the issue of a possible universal numbering system for all citizens which, while producing gains in administrative efficiency could significantly increase the potential for invasions of privacy.

### SECTION 3. The impact of computer technology

Describes the probable future development of computer technology and its possible impact upon privacy (an increase in the amount of information collected and in the efficiency of its storage; greater possibility for centralization). The section examines also the state of and procedures for ensuring the security of data banks and notes that while sophisticated protective techniques are available the most common source of leaks lies in the more traditional area of indiscreet employees or simple laxity.

### SECTION 4. The specific areas of concern.

Summarizes the task force's views on the most likely areas in which the rights of individuals may be damaged by computerized information systems. It notes that the scale of invasions of informational privacy does not warrant, at this time, a description as a "crisis", but that, without adequate controls, "this situation could change quickly".



It notes that few data banks at present operate with formal, written rules which set out the rights of the individuals concerned. The report emphasized also the importance of individuals having the right to access their own files, to check their accuracy and to know the uses to which they are being put.

A sub-section is devoted to the subject of "The politics of privacy" which notes that the debate on privacy in fact covers a much wider ground than is sometimes realized. Information can be linked to power, and the possession by institutions of extensive, computerized systems, may enhance their power to the detriment of individuals.

#### SECTION 5. Privacy and the law.

This chapter surveys existing laws relating to privacy: the common law, with particular reference to defamation and breach of confidence; the Quebec Civil Code with particular reference to article 1053; provincial and federal legislation. It examines the role of the courts as a means of protecting individual privacy.

A separate chapter describes and then examines a range of so-called regulatory remedies. These could vary from self-regulation by the industry itself, to regulatory responses such as the establishment of some type of surveillance agency or ombudsman, or formal regulation through an independent tribunal or board. Note is also made of existing systems of control such as that exercised, within the federal government, over Statistics Canada and the taxation records of the Department of National Revenue, and in certain provinces over credit records. Constitutional considerations are described. Special attention is given to the international problems which result from the storage of large amounts of data about Canadians in systems located outside Canadian boundaries.



## SECTION 6. Conclusions

The report notes that a claim to privacy can at times conflict with the claim to "freedom of information" or to "a right to know" and these claims must be balanced.

Emphasis is placed on the need to avoid implementing measures to protect privacy which could "interfere with the free flow of information and constitute a cure worse than the original ill."

The task force concludes that government, as "by far the largest collector of data" has a special responsibility, and that federal government "might give serious consideration to the desirability of drawing up rules and creating instruments that could regulate data banks operated by its own agencies and departments insofar as personal privacy is concerned."

The report notes that its studies identified as a problem quite different from although related to privacy, that of "the disparity in power between individuals and institution " and concluded that "solutions can only be found in a more even sharing of the power made available by computerized information systems".

In a similar vein, some of the problems raised by the extra-territorial location of large amounts of personal data about Canadians, "raise questions that relate not so much to possible invasions of privacy as to possible invasion of culture." The conclusion is reached that Canadian culture, "is and certainly will be increasingly as sensitive to the content of computerized information systems as it is to the content of broadcast programs."

In conclusion, the report states: "The privacy crisis unlike the ecology crisis which was predicted but largely ignored until severe damage had been done to the environment, need never happen. Appropriate preventive measures can make certain that it in fact never will".



#### AVAILABILITY

The Privacy & Computers Task Force report is available from Information Canada at a cost of \$2.50





December 7, 1972.

PRIVACY AND COMPUTERS TASK FORCE REPORT

BRIEF EXCERPTS

"Today comprehensive personal details about everyone are stored in an ever-growing number of files, from education to credit, from welfare to insurance from taxation to criminal history. By almost every act, from acquiring a passport to buying a car, each citizen leaves a trail of data behind."

- Pg 1.

"More personal information is being collected than most Canadians probably suspect, and is being made available to a larger number of users than is probably supposed."

- Pg 3.

"The enormous technological capabilities of computerized information systems can... raise certain threats to important human values -- like privacy -- which are integral to our very conception of what it is to be human."

- Pg 10.

... 2 ...



"The invention of computers gives rise in our time to a situation somewhat analogous to the discovery of iron in prehistoric times, for as the weapons fashioned of the new metal must have been a key element in the ancient power structures, so the computer's ability to store, manipulate and transmit data makes it a key component of power today."

- Pg 19.

"There is probably more data interchange than is generally realized by the public. Information networks flourish in many situations where the exchange of personal data is beneficial to both parties involved."

- Pg 29.

"There are more inaccuracies in personal information systems than is probably generally realized. Seventy-five per cent of respondents to the question on the subject reported discovering mistakes in their manual files when these were automated."

- Pg 31.

"By their apparent readiness to accept some form of regulatory controls, databank proprietors, and more particularly the proprietors of large personal databanks, showed considerable awareness of and sensitivity to the issue of informational privacy. "

- Pg 31.



"It has frequently been pointed out that extensive use of a credit card by an individual can result in his leaving a fairly complete record of his activities. This record can be useful to the police as well as to others. It is not unknown for criminals to be apprehended as a direct result of using a credit card."

- Pg 57.

"Enormous economies of scale are now possible in the manipulation of large databanks. The relatively high capital cost of large memories will also be a strong incentive to economize by centralization of digital data files."

- Pg 97.

"In the early days of computers, few people were sensitive to its potential human effect or had enough familiarity with the computer as a tool to make it behave as desired without unwanted side effects. The necessary knowledge and sensitivity are now growing, and provided the will is present, the computer can provide a tool for dispersal of information or power, and for the maintenance of privacy and individuality in an increasingly complex society. It can do this by catering to all individual needs in a way which only the wealthy and powerful can now afford. Insensitive or wilful use of the computer could, on the other hand, lead us closer to a 1984 society."

- Pg 98.

"There are few safeguards, for example, to counter the tendency of private corporations and particularly government institutions to gather more information than may be necessary for the purpose at hand; or to control the collection of information that might subsequently provide the basis for racial,



religious, or other unjust discrimination. Nor are there, except occasionally, limitations on or rules governing whom data might be collected from, despite the expressed public concern about the practice of some investigators who make unauthorized inquiries among the friends and neighbours of a subject."

- Pg 113.

"While many databanks have programmed security standards and procedures to guard against "leakages" of information, and to ensure that only authorized personnel gain access to particular files, others had given very little thought to the problem. Indeed, among many of those that had adopted security measures, the protection of privacy had not been one of the primary reasons."

- Pg 115.

"Information systems appear to enhance the efficiency and therefore the power of the institutions that operate them. Those who question the authority of those institutions, or at least the ways in which that authority is exercised, may attack their behaviour on the grounds that it invades privacy, when in fact the real target is institutional power and its linkage to the possession of information."

- Pg 119.

"While the individual, as a member of the public, seeks "freedom of information" or the "right to know", in his personal life he claims a right to privacy. Some accommodation between these two interests, therefore, must be made. If the privacy of the individual is to be protected, there will be occasions when information cannot be divulged. In other situations, personal information about an individual may be of such vital concern to society that the individual's privacy must be sacrificed."

- Pg 121.





"The task force is of the view that a coherent claim to privacy of information is developing and that its definition in law would be beneficial. This could serve to inform future court decisions, lead to more effective legislation and generally produce a better understanding of the nature of the issues at stake regarding privacy."

"On a conceptual plane, it is possible to argue that every fact about an individual in our society is directly related to his personality and, in consequence, that he has a basic and continuing interest in these facts not being disseminated to others without his knowledge and consent."

"There may be a certain "core" of privacy which (although its boundaries may be legitimately varied by judicial and legislative action in response to other social claims) must not lightly be invaded lest an individual's personality be violated."

- Pg 142.

"The effectiveness of the courts will grow in proportion to the increase in the volume of litigation on the subject, to the awareness by the courts of the importance of privacy, and to the development and refinement of a general remedy for its protection."

- Pg 180.



Notes for a speech

by

Hon. Gérard Pelletier

Minister of Communications

to

The members

of

The Canadian Association of Broadcasters

and

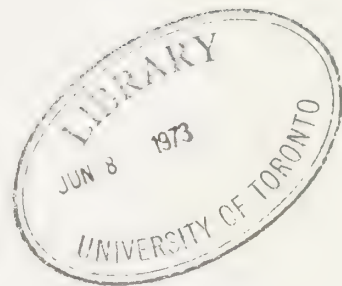
The Canadian Cable Television Association

8: 30 P.M.

February 7, 1973

Rideau Room, Carleton Towers Hotel

150 Albert street, Ottawa



For release 8:30 P.M. February 7, 1973



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It is particularly appropriate that my first major public statement since my appointment as Minister of Communications should be addressed to so many prominent representatives of the Canadian broadcasting and cable television industry. This occasion is especially significant because it reflects so well my conviction, and the conviction of the Federal Government, that in any consideration of communications in Canada, broadcasting - and the content of broadcasting - must be of fundamental importance. I am also pleased to be speaking to you gentlemen in particular because I bring with me from my last posting a responsibility that has not generally been associated with the Minister of Communications. As you will have guessed I am referring to the fact that the Canadian Radio-Television Commission continues to report to me even though I have left the department of the Secretary of State.

Given the questions that this development may have raised I have set myself two objectives in this speech. The first is to reassure you, if such reassurance was ever necessary, that the principles that have guided Canadian



broadcasting policies over the past four decades are not about to be abandoned to satisfy administrative convenience or some abstract principle of economic rationalization.

I have a dual responsibility - and it's one I'm not unfamiliar with. As you will recall, I was, for a time during the last Parliament, acting Minister of Communications and Minister reporting for the CRTC. I'm again responsible for assuring that the essential role of broadcasting be maintained within a framework which encourages the development of efficient, dynamic and economically viable





Canadian communications systems. This dual responsibility can be seen as a reflection of the governments's realization that all forms of electronic communications, whether we are talking about the point-to-point communications of telephony, telegraphy or data-transmission or the distribution of programs intended for the general public through radio, television or cable, are inter-related.

The ways in which they relate and have an impact on each other can be seen in several ways: the technologies are the same and are served largely by the same manufacturing industries; they share the same systems; for example Telesat will not only carry live radio and television from coast to coast and far into the Arctic, it will also carry telephony, data and many other telecommunications services; both broadcasting and point-to-point communications have profound social, economic and cultural effects on Canadians and both serve to bring us closer together no matter how great the physical space that often separates us; and finally even if we were to restrict ourselves to cultural impact alone we would have to see that as cable technology advances non-radiating systems and perhaps systems that are not even connected to receiving antennas could offer programs that might compete with the kind of programming that traditionally has been associated almost exclusively with radio and television broadcasting.



My second objective in this speech will be to expand somewhat on the necessarily terse statement about communications made by the Governor-General in the Speech from the Throne at the opening of Parliament, January 4th. And in that context I will stress again the need for consultation and discussion at all levels of government in Canada before any action is taken which will affect the future strength and development of our communications and services.

To return to my first objective, let us remember that broadcasting has occupied a unique position in the social and cultural development of this country, and of its component cultures and regions. I can also assure you that so far as the Government of Canada is concerned it will continue to do so. We've cared very much about what we see and hear on our broadcasting systems. We've cared, not just from a political point of view, but as broadcasters and ordinary citizens, that the full potential of broadcasting be developed in the public interest. Sir Henry Thornton, the CNR president who played such a role in the development of radio broadcasting outlined his larger concept for radio in 1929:

It is only through nation-wide broadcasts that we shall accomplish what we regard as most important, the encouragement of a feeling of kinship between all parts of the country, to bring home to all sections most vividly



our common aspirations and achievements...

We regard the use of radio as a national trust.

It is essentially both a national and a local service institution.

The present Broadcasting Act isn't one government's invention - it's the latest statement of the traditional role ascribed to broadcasting in an evolving society. Broadcasting, because of its hundreds of stations and cable systems, its far-flung networks, and the variety of its creative and financial inputs, is virtually a living, active symbol of Canadian identity. As the Honourable Gordon Carton, Ontario's Minister of Transport and Communications said in a speech to the CCTA this fall,

"We must all be interested in the preservation of a Canadian identity and the integrity of our country. An attempt to do this is enshrined in the Broadcasting Act. This Canadianism will always be a modifier in the activities of the government of Ontario, just as I know it is a modifier in your actions."

And a recent Quebec paper on communications policy reminded me that if there is a danger in federal paternalism in fields which affect culture, there is an equal danger in regional isolationism. It stated:

Nothing would be more tragic than the intellectual isolation of a people, or of ethnic groups turned in upon themselves.



Canadian content wasn't invented in some political backroom. It always existed where men prospected their own experiences, looked into their own lives, analysed their own roots, or invented or originated an idea in a particular context. If the experience was somewhere in Canada, if the life was conditioned here, if the roots somewhere tapped Canadian soil, if the context had to do with needs or situations here - it can be called Canadian - and the only public responsibility is to somehow let it live! To "let it be" is to make sure it can survive, to guarantee that we have the right to see everything, including ourselves.

In Canada we have always related cable television closely to television. This does not imply that we ignore the many other possibilities that cable television offers, and I shall return later to this question. Even under the 1958 Broadcasting Act, the Minister of Transport who was then responsible for licencing cable television would first seek the advice of the BBG before granting a licence. In 1968, Parliament having noticed the extremely rapid development of cable television in Canada, and the more and more obvious relationship between cable television and television, included broadcasting receiving undertakings under the Act and made them part of a "single broadcasting system".





The CRTC released a first policy document on cable television in May 1969; a second paper in February 1971 and a third in July 1971. Many other less important policy announcements and of course many very important decisions were also made and are still being made.

Among them are those decisions which resulted in the repatriation of broadcasting and cable operations equivalent to \$146 million dollars. In Quebec alone this policy of the Government resulted in the transfer largely to Quebec - located interests of over \$54 million of broadcasting stock and securities.

The Department of Communications for its part developed Broadcast Procedures 23 and 24 in consultation with industry to assure higher technical standards for the service purchased by cable television clients.

The thread running through legislation, policies, regulations and individual decisions has been consistent and clear. Over the air broadcasting is and will remain indispensable throughout Canada for a long time and cable television - whatever its other possibilities may be - is inextricably linked to over-the-air broadcasting. Thus, one essential purpose of cable television policy should be to strengthen broadcasting in Canada and not to disrupt it.



I have had other occasions to express this view before and in order to underline the consistent attitude of the Government on this matter, perhaps I may be allowed to quote myself:

"The 1968 Broadcasting Act illustrated the conviction of public authorities that cable broadcasters constitute an integral part of the broadcasting community. I do not subscribe to the argument that these new methods will replace the older forms of open air broadcasting, as some have suggested. But I am, on the other hand, firmly convinced that we shall witness many changes in the cable broadcasting field, and find promising new uses for this very important instrument."

That was in a speech before the Canadian Broadcasting League in December, 1970. And I made the following statement in a speech to federal cultural agencies at Ste Adèle in May 1971;

"The Government would be denying itself if it accepted any measures likely to destroy the essential cohesion of the Canadian broadcasting system. On this point, I am disturbed at the ready acceptance of the idea that cable television and regular television are distinct and independent entities, an idea that takes no account of the overlapping that has resulted naturally from twenty years of evolution both in the United States and in Canada. Those who follow the development of broadcasting in Canada at all closely are familiar



with the very great difficulties that will have to be overcome if we are to maintain a balance among the various elements of our system: cable and regular television, the commercial sector and the public sector, and so on."

This does not impose obligations only on broadcasters and cable operators. I am told that the CRTC and I know that my Department are fully conscious of their obligation to ensure that all people served by cable television have comparable services and similar standards of service, whether they live in single-dwelling houses or high-rise buildings. The CRTC has also expressed the view, which I support, that the cable television systems will not be able to discharge fully their obligations under the Broadcasting Act if parallel but unlicensed and unregulated systems are allowed to develop.

I have spoken about social and cultural concerns, and their relationship to broadcasting. One might also ask why such an emphasis on cultural forms and expression when developments in cable technology may revolutionize many of our basic assumptions about the very nature and flow of social communication.

I fully understand the problems faced both by cable operators, and the Commission in trying to integrate cable and off-air broadcasting so that both may continue to flourish.



I am also aware that there are now few cable operators who would seriously maintain that they have no responsibility for the health of the broadcasters on whose products they still depend. And I'm also informed that a growing proportion of cable operators are manifesting a realization that they can return to the communities in which they have monopoly franchises dividends in form of local programming facilities. Nevertheless, it's also clear that off-air broadcasting remains the indispensable and economical technology for further extension of the Canadian network and certain kinds of community broadcasting service. Many isolated and rural communities and homes will receive two, soon three, Canadian network services by antennas - not cable. These aren't scenarios for the next two decades - they are facts today, with a known and exploitable technology.

On the other hand, cable television in many areas of the country is vastly increasing the distribution capacity for the same kind of programming and, of course for many other kinds of information. Many cable companies are improving their systems in order to provide a greater number of channels of distribution. I am fully aware that the cable industry has repeatedly expressed its recognition of the objectives expressed in the Broadcasting Act and moreover have endorsed the policies expressed by the CRTC in its statement on the integration of cable television in the Canadian broadcasting system.





However, it is not denying any of those facts to recall that cable television is vastly increasing the pressures for more importation of programs into more and more areas of Canada. More recently, some commercial groups who have never had any other interest than to import more entertainment material into Canada from abroad and who have hardly ever shown any concern for the cultural policies of the country, have started so-called Pay TV systems in some Canadian hotels.

I have taken note of the CRTC public announcement on this subject.

These developments plus others which may be brought about by satellite and cable television techniques, all point in the same direction: a tremendous increase in reception and distribution techniques.

The question stands out clearly. Will our capacity to originate, to produce, in order to express our views to one another and to other parts of the world also increase? Or will our time and energies in the coming years be completely absorbed by endless quarrels as to how our system should be parcelled out?

But it is equally clear that if we Canadians want to occupy a prominent place in our own communications systems we had better stop arguing, decide on a range of unanimously held common objectives, and mobilize all our resources of energy and powers of creation.



This mobilization of Canadian production has already begun. We should all applaud the efforts of some of the provinces to build and nourish strong educational television production institutions. In Alberta the recent Worth Commission report stated "one of our most flexible learning resources and demands heavy emphasis on regionally produced material."

Ontario's OECA will soon expand its ETV network outside Toronto, to bring its heavily Canadian produced schedule to more residents of the province. Equally laudable efforts by Ontario in other cultural fields, should also be noted. In Quebec, Radio-Quebec is committed to Quebec production with great emphasis on audience feedback and real participation.

In the field of computer/communications, the gaps in Canadian participation have been identified and solutions proposed in the Task Force study Branching Out, which is at present under consideration by the government.

The report stressed the need for developing East-West communications systems capable of providing data services at economically-competitive prices to counter the strong and potentially overwhelming attraction of the North-South links with American data-banks and systems.



Thus in both the information and entertainment fields, there is still much to do together if we are to avoid building complex systems for the carriage of mainly foreign material.

I think you'll agree that the point at which all our interests - - federal, provincial and industry - - converge is the desire to see the balanced development of our communications system- as between the capacity to transmit, and the ability to originate and receive. No telecommunications plan can ignore the provision of adequate and appropriate systems for the initiation, processing and reception of message systems - whether they be mass entertainment programs, computer applications, interactive programs, or data banks. And even though sometimes, for instance, we like to think of the computer utility in every home, I think there are few businessmen who would not admit that Canadian models and programs will have to be developed for Canadian markets.

By the same token, no producer in the field of the public arts, or of public instruction can ignore the relationship between his work and success, and the technical and efficient aspects of the communications systems on which he increasingly relies for production and distribution.



I firmly believe that the crucial question being asked of all of us by the public is whether or not the two levels of government, together with the broadcasting and communications industry, can work together to ensure that future complex and pervasive systems of communication can play a role in reinforcing both the regional aspects of our identity and the national need to exchange and reinforce these local needs, expressions and aspirations. Only if we can answer this question can we translate the often expressed desire and intention of Canadians to preserve and give substance to the values they feel in their own foyers, in their own homes, into a will to survive within a larger group of communities.

I have spoken at some length about the vital role of broadcasting. Efficient communications are essential to the viability of the Canadian broadcasting system. Unless the artistic and creative achievements of Canadians are effectively transmitted to all parts of the land much of their efforts will be in vain. I find it impossible to over-emphasize the vital importance of ensuring that Canadians can communicate with each other cheaply, quickly and efficiently. I mean all Canadians from east to west and from our southern borders to the upper limits of our northern islands and this also means Canadians involved in all sorts of activities and occupations in their homes, on their farms, in their places of business, in big cities or small towns. As much as possible we must work to give Canadians greater access to the most modern and diverse communications services. For if Canada cannot provide communications facilities for each other that are as good as those offered





by our neighbors, we should not expect to maintain our sovereignty easily. To achieve this objective is a colossal national task which requires the cooperation of all Canadians and of public and private authorities at every level. As a sovereign country, occupying one fourteenth of the land surface of the globe, we will live or die by communications. Families must talk to each other across our vast spaces; people living in isolated communities must be able to contact the outside and the outside must be brought to them; pensioners and the poor must be able to afford the electronic communications links that will allow them to reach their doctors or their loved ones. In a country such as ours, basic communications services such as telephones are close to becoming a human right. Canadians will not accept one standard of telecommunicatiks service in one region and another elsewhere. They will not long accept that the economic prospects of their towns or regions may be prejudiced by inadequate communications. And as the development of communications systems continues to accelerate, they will not accept that the gap between haves and have-nots should increase. They demand and have every right to expect the contrary.

It is these kinds of considerations among others that lie behind this statement in the Speech from the Throne, and I quote:

"Efficient communications between all parts of the country are essential to the unity and prosperity of Canada. Technological developments can have a pervasive effect on the social and economic well-being of all Canadians. The Government will, in the near future, submit to Parliament proposals for a national



communications policy, and for resolving problems arising from the growing interaction between broadcasting and other forms of telecommunications, giving due weight to the interests and concerns of the Provinces".

The consultation and investigation which has led us to this stage in the development of a set of policy proposals have spanned more than five years and the world of communications being what it is, one can predict that it will probably never end completely. In the past few years, one of the most important events in this process was the launching in September of 1969 of the Telecommission. This massive series of studies, encompassing more than 45 fields of investigation and involving the contributions of both the provinces and industry, led to the publication of a general report, Instant World, in April 1971. The report surveyed the entire state of telecommunications in Canada and laid the groundwork for an evaluation of a number of possible approaches to improving the Canadian communications environment. In the field of broadcasting and cable television, the CRTC has held 47 hearings where members of the public and broadcasters have had occasion to debate matters of policy and regulation. The Commission has rendered some 3,500 decisions, many of them implying precedents with far-reaching implications. Broadcasting policy matters handled by the Commission have included Canadian content requirements for radio and television programs, the repatriation of a large number of radio, television and cable operations; the integration of cable television systems into a single Canadian broadcasting system; the establishment of community programming on a cable television channel, and so on.



As the Telecommission studies progressed, other studies were conducted either by the Department of Communications or the Canadian Radio-Television Commission singly or in cooperation with others. There was as I have already said the investigation of policy issues raised by the rapid deployment of computer/communications systems in Canada by the task force created to study these problems in October 1970. Its report was published in August of last year under the title of Branching Out. There is also a study, still in progress, of problems of interconnection of terminal device systems. A concurrent study conducted jointly by the Department of Communications and Justice on the special problem of privacy in the field of computer/communications was completed with the publication last December of a report entitled Computers and Privacy. In the field of broadcasting the CRTC has been active in studying problems of citizens' participation and expression through new communications media. In addition, the Department of Communications, the Department of Secretary of State and the National Film Board have jointly sponsored the Citizens Communications Task Force, the report of which is expected to be published within the next few months.

Earlier the federal government, after lengthy consultations with the provinces modified by Order In Council PC 1972-1569 13 July 1972, the longstanding policy of not permitting



the issuance of broadcasting licences to provincial governments or their agents. Under the new policy corporations that would otherwise be regarded as agents of provincial governments may receive licences from the CRTC for educational broadcasting purposes.

During the past year or so, several provincial governments have also undertaken a number of studies in the field of telecommunications, and provincial ministers responsible for telecommunications have begun holding regular meetings to discuss common problems. I must say that I welcome this growing interest in the telecommunications policy field on the part of the provinces; some, as we all know, have been involved for many years.

Can any conclusions be drawn at this stage of study and consultation? Perhaps the simplest conclusion is that our communications have reached high levels both of efficiency and effectiveness - in every sense. We lack neither the means to talk to each other, nor to exchange both business data, and collective programs and experiences. To this vast physical network must be added pervasive access to all kinds of what might be called communications appliances - everything from radios, TVs, teletypes, recording and playback devices, audio and visual processing devices. Studies indicate that this generalization of the home communications appliance is just beginning. The opportunities for us all to plug in to, to contribute to, or interact with communications networks are only really just beginning to be manifested.





Surely this means that, for any government concerned, the social, cultural, economic, scientific and industrial objectives of telecommunications policy must all be seen to be inter-related. Communications is an instrument of national and regional policies in all fields of vital interest to Canada. This is certainly a sufficient challenge to occupy both levels of government and every facet of the communications industry.

Canada now benefits from communications services as extensive as they may be in any other country in the world. But we must not lag behind. If our rates are not competitive, our East-West links will begin to fail. If our communications services cannot expand, as technology provides new challenges and opportunities, we cannot grow as a modern industrial state; now can we compete in the post-industrial age. No modern state can flourish without a solid industrial base and this includes excellence in the electronics industry. Vast resources of capital are required by all industrialized nations to continue to build the electronic links that hold countries together, that allow them to manufacture, to export and to maintain a reasonable standard of living. With our vast geography, sparse population and limited capital resources, what is difficult for others is an even greater challenge for us.

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Canadians have always expressed a very strong determination - which their representatives in Parliament have reflected with equal strength - to give themselves means of original cultural expression and not only physical tools which, through lack of adequate care and effort, would serve mainly to channel other people's views. Note that I am not referring only to artistic forms, but to information, knowledge or cultural models in the fields of economics, business, industry, science, technology and socio-political concerns.

The experience of recent years seems to indicate that we may have to do more than improve our objectives in telecommunications and broadcasting by altering the frames of reference of federal regulatory and operating agencies. We may now have come to a point where we need to create an environment in which all initiatives, whether they be public or private, federal or provincial, can be harmonized with agreed social, cultural, economic, scientific and industrial objectives. These objectives will have to reflect both national and regional interests and will need a good measure of intergovernmental discussion and cooperation in their achievement.



In the next few weeks the government will be introducing in Parliament proposals for a framework within which we can meet the problems of telecommunications regulation and development in Canada. The document will not be a white paper. It will be designed to provoke debate and committed comment from all those with a stake in the future of Canadian communications. A lot of hope and a great deal of general concern will focus on this paper from everyone involved in the scientific, technical, humanistic, business, creative and political aspects of telecommunications. The paper will not didactically set out various closed positions; rather, we hope it will elicit from all these interested sectors vital contributions according to their particular concerns. I personally hope that the paper will be a vital first step in clearing the air and helping us all, in governments and industry, to get down to business of reassuring the public, and the creative, financial, and technical shareholders of our communications systems, that governments can co-operatively take the steps necessary to provide a continued environment for progress.

The final step in this process, and the aim of our efforts in the Department of Communications, will be legislation. And that step will be made in due course. But anyone who has had to deal with either broadcasting or telecommunications problems, as I have had to do from time to time

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during the past several years, knows that there can be immense consequences to any action taken either by the Government of Canada or one or all of the governments of the provinces. And only minds in search of too facile solutions could or would say that any given telecommunications technology or any service can develop in complete isolation from another. This being so, it is inconceivable that this government should make broad policy proposals leading, in time, to legislation without giving adequate opportunity for all interested parties to comment.

Specifically, it is our intention to assure that the provincial governments, which over the past few years have shown a heightened interest in the field of telecommunications and broadcasting regulation and policy-making, have the opportunity to contribute to and share in the shaping of that policy. The federal government is most anxious that its policies take full account of provincial interests and points of view. Therefore, I look forward personally to the opportunity of thorough discussions with the representatives of provincial governments. I emphasize that it is only after this process is completed that we will take the next step towards rationalizing the federal legislative and regulatory environment for telecommunications and broadcasting undertakings.





It will be clear from what I have said that the steps I have been describing for the near future are not aimed at solving all the problems of telecommunications in Canada; no single piece of legislation or any single regulatory reform, no matter how well conceived, could do that. What can be achieved, I am convinced, is the working out of firm and broad policy objectives coupled with a flexible approach to regulation and the regulatory environment which will help telecommunications systems and services that are federally-regulated to respond to the needs of our society and our citizens in the years to come. It is my hope that the proposals to be made in Parliament in the near future will lead to solutions which will be widely acceptable to all those who may be affected by them.

I suppose it is fair enough to ask why we or any other government in Canada should want to tinker with the works.

The pressures for change are numerous. The public is more and more rallying behind what amounts to a new movement, consumerism. This movement, even though its perception of problems and its slogans seem too often rooted in American rather than Canadian experience, is probably an expression of a growing feeling in Canada that public utilities have somehow escaped the legitimate restraints of the public interest. Whether this is true is not so important, in this context of credibility, as the fact that it may be seen to be so. The provinces, representing the public interest at a



different level, have also sensed this and some have made suggestions to improve cooperation between the two levels of government in the regulatory process and some have called for even more fundamental changes.

Yet another pressure for change in the regulatory environment comes from the introduction of new technologies. Cable television is a case in point. Cable systems as they are most frequently used by CATV operators are a significant element in Canadian broadcasting. But more and more, as time goes by, there will be pressure to use the excess communications capacity of coaxial systems to do more than distribute off-air broadcast signals to households. Some of these services may indeed be seen as competition to services that might be offered by regulated common carriers.

This sort of possibility may pose problems for those who have a responsibility to ensure orderly development of systems in the public interest. In this way cable technology has become a major concern to those interested either in broadcasting or telecommunications. But new technology is not merely a problem for authorities. Coaxial cables or satellites, or computers are really important because they provide new opportunities for communities and individuals to liberate themselves from the bonds of uniformity and monotony and the constraints of a local time and space. Given the almost universal impact electronic communications and the accelerating speed at which new technology makes new services available, it is not surprising that all governments in Canada have shown a greater interest in the subject and its implications.



It is for this reason that we intend to make proposals which will reflect the growing interests of the provinces in the development of coaxial cable systems and which will give these interests a means of expression. The degree to which some, or all, of provincial or local interests may be reconciled with the national interest of maintaining a strong Canadian broadcasting system, will be determined in discussions between the two levels of government during the next few months.

Thus the federal Government will very shortly be establishing the basis for discussions on means and methods to improve the policy making and regulatory framework for communications in Canada. Such discussions should permit an orderly coordination of varying interests.

The obvious need is for Canada to make a further step in the construction of a strong and flexible communications system where all the interests, and certainly the national interest, are safeguarded. The indispensable progress of our communications broadcasting system requires clear, long-sighted, coherent government policies.

Quarrels would be harmful, first of all from the point of view of the public. They would also be disheartening from the point of view of those responsible for administering services in the public interest and who have so many more productive and usefull things to do; finally they would be, whatever the outcome, disastrous for the thousands and thousands of Canadians who, more and more, are investing their savings in broadcasting and communications undertakings.



A Canadian writer, Walter Fenton in 1932 gave us an insight into some of the problems facing us, when he said, "Most prudent people hesitate to do business with their relatives. When the necessity arrives, the results are seldom a stimulant of family affection. Each kinsman expects the other by reason of his kin to make friendly concessions."

No matter, I am most confident that at every level of government, in all sections of industry and in all the creative and professional groups, the will of the vast majority of people is to take the necessary means to provide Canadians with the communication systems and services they need.







Text of a Letter from

Texte d'une lettre de

Minister of Communications

M. Gérard Pelletier

Gérard Pelletier

Ministre fédéral des Communications

to the

au

Minister of Communications

Ministre québécois des Communications

for the

M. Jean-Paul L'Allier

Province of Quebec

Jean-Paul L'Allier

Déposé à la Chambre des communes

Tabled in the House of Commons

Le 23 février 1973 à 11h.

11:00 a.m.

February 23, 1973



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February 20, 1973

Mr. Jean-Paul L'Allier  
Minister of Communications  
Government of Quebec  
QUEBEC

Dear Mr. L'Allier:

An ordinance of the Public Services Board of Quebec, dated December 20, 1972, has been drawn to my attention. It is entitled "A General Ordinance Concerning Public Undertakings described under the Public Services Board Act". The publication of this ordinance, under the present circumstances and taking into account its nature and import, has surprised me greatly and runs the risk of most serious consequences.

I am well aware of "The Public Services Board Act"; I have noted that the National Assembly of Quebec had stated that this law applied to matters within the jurisdiction of Quebec legislature in the field of communications.

Section 1 of the Act reads:

"1. This Act shall apply to the matters set forth in Section 2 appertaining to the jurisdiction of the Province.  
RS 1941, c.143, S.1; 13 Geo VI, c.47, S.2"

The "General Ordinance" seems to proceed from quite a different basis. A reading of the text would suggest that this ordinance might apply to television and radio stations as well as to cable television companies and telecommunications companies.

After verification, it now appears that the Board's ordinance was addressed only to cable television companies. Indeed, these companies were the only ones



to receive a letter from the Board specifying that they had to comply with the ordinance; however, since the ordinance was officially published, it is difficult, without formal advice to the contrary, not to conclude that the Board's ordinance applies to radio and television stations and telecommunications companies as well. I must remind you that, insofar as cable television companies are concerned, the federal government, first of all through the Department of Transport and then under the Canadian Radio-Television Commission, has exercised its jurisdiction for about twenty years. The 1968 Broadcast Act is the most recent federal statute on this subject. As for the CRTC, it has issued numerous rulings and statements of general policy regarding cable television in every year from 1969 to the present.

Thus, there is very little doubt that the ordinance is ultra vires of your own law (Section I) and of the Constitution of Canada.

Furthermore, I myself have on several occasions, either as Secretary of State or as Minister of Communications, expressed the firm conviction of the federal government that the regulation of cable television is inseparable from the regulation of radio and television. It is thus essential that the federal government should assure, by all appropriate means, the integrity of its jurisdiction over the Canadian Broadcasting System.

I should also point out that double regulation, if not preceded by a mutual accord, could lead to unpredictable consequences on a very broad scale and to general confusion. This would be very prejudicial to the interests of citizens either as consumers or as investors in the companies in question. These complications would no doubt compromise the future development of an industry whose importance no one doubts.

I recognize the many reasons for the Quebec Government's interest in telecommunications. It is for this reason that we have met provincial governments, your own included, on numerous occasions during the past two years. It is for this reason also, as I stated recently, that the Government of Canada plans to publish a document containing a series of proposals



related to communications policy in Canada. Several of these proposals deal with the machinery of cooperation between the federal government and the governments of the provinces.

In closing, I would draw to your attention that federal authorities have already gathered information which your government may find essential in the preparation of its telecommunications policy. To the extent that the ordinance is intended to satisfy a need for such information, I would suggest the possibility of a solution involving the collaboration of the two levels of government.

Finally, I wish to inform you of my intention of tabling this letter in the House of Commons this week.

Yours sincerely,

G rard Pelletier





OTTAWA, 1e 20 février 1973

Monsieur Jean-Paul L'Allier  
Ministre des Communications  
Gouvernement du Québec  
QUEBEC.

Monsieur le ministre,

On a porté à ma connaissance la récente ordonnance de la Régie des Services Publics du Québec intitulée "Ordonnance générale concernant les entreprises publiques définies à la Loi de la régie des services publics". La publication de cette ordonnance dans les circonstances actuelles de même que sa nature et sa portée m'ont grandement surpris; elles risquent d'entraîner les plus graves conséquences.

Je connaissais bien sûr la loi intitulée "loi de la Régie des Services publics". J'avais noté que l'Assemblée nationale du Québec avait inclus à l'article 1, que cette Loi s'exercerait à l'intérieur de la juridiction de l'Assemblée nationale du Québec dans le domaine des communications. Cet article se lit comme suit:

"1. La présente loi s'applique aux matières énumérées dans l'article 2 qui relèvent de la juridiction de la province. S.R. 1941, c. 143, a.1; 13 Geo.VI, c.47, a.2"

L'"Ordonnance Générale" semble s'inspirer d'une attitude toute différente. La lecture attentive du texte porte à penser que la Régie des Services publics prétend appliquer cette ordonnance aux postes de télévision, de radio, aux compagnies de télévision par câble et aux compagnies de télécommunications.

Vérification faite, il semble que l'ordonnance de la Régie des Services publics ne s'adresse qu'aux compagnies de télévision par câble. En effet, seules ces compagnies ont reçu une lettre de la Régie spécifiant qu'elles sont tenues de répondre aux exigences de l'ordonnance. Cependant, l'ordonnance ayant été publiée en bonne et due forme, il est difficile de conclure, à moins d'avis contraire formellement exprimé, que la Régie ne prétend pas soumettre à l'ordonnance



les postes de radio et de télévision et les compagnies de télécommunications. Je me dois de vous rappeler, quant aux compagnies de télévision par câble, que le gouvernement fédéral, d'abord par le Ministère des Transports, ensuite par le Conseil de la radio-télévision canadienne, exerce sa juridiction sur elles depuis environ 20 ans. La loi de la radiodiffusion de 1968 représente le dernier texte de loi fédéral à ce sujet. Quant au C.R.T.C., il a émis à l'endroit des compagnies de télévision par câble, de très nombreuses décisions et plusieurs énoncés de politique générale en 1969, 1970, 1971 et 1972.

Il y a donc très peu de doute que cette ordonnance est ultra vires de votre propre loi (art. 1) et de la Constitution du Canada.

Par ailleurs, j'ai eu moi-même l'occasion d'exprimer à plusieurs reprises comme Secrétaire d'Etat et comme Ministre des Communications, la conviction ferme du Gouvernement fédéral que la réglementation de la télévision par câble est inséparable de la réglementation de la télévision et de la radio. Il s'impose donc que le Gouvernement fédéral prenne toutes les mesures propres à assurer l'intégrité de sa compétence touchant le système canadien de radiodiffusion.

Je me dois de souligner aussi qu'une double réglementation pourrait conduire, à moins d'une concertation préalable, à des complications d'une envergure insoupçonnée ainsi qu'à une confusion générale tout à fait préjudiciable à l'intérêt des citoyens, d'abord comme usagers et ensuite comme investisseurs dans les sociétés en cause. De plus, ces complications seraient sans doute contraires au développement d'un secteur dont l'importance est évidente pour tous.

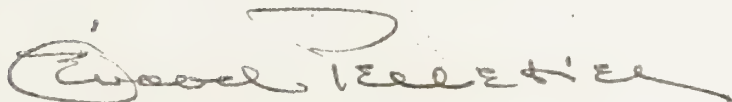
Je reconnais que le Gouvernement du Québec a des raisons nombreuses de s'intéresser au domaine des télécommunications. C'est pourquoi, nous avons eu déjà depuis deux ans de nombreuses rencontres à ce sujet avec les gouvernements provinciaux, y compris le vôtre; c'est pourquoi aussi comme je l'ai indiqué récemment, le Gouvernement fédéral s'apprête à rendre public un document qui comprendra une série de propositions relatives à la politique des télécommunications au Canada. Plusieurs de ces propositions ont trait à l'aménagement de la collaboration entre le Gouvernement fédéral et les gouvernements des provinces dans ce domaine.



Enfin, je veux souligner que les renseignements nécessaires à l'élaboration de la politique de votre gouvernement dans le secteur des télécommunications se trouvent déjà entre les mains des autorités fédérales. Dans la mesure où l'ordonnance aurait pour objet de répondre à ce besoin, je me permets de vous suggérer qu'il est possible d'envisager des solutions de collaboration entre les deux niveaux de gouvernement.

J'ai l'intention de déposer copie de la présente à la Chambre des communes dès cette semaine.

Veuillez agréer, monsieur le ministre, l'expression de mes meilleurs sentiments.

A handwritten signature in dark ink, appearing to read 'Gérard Pelletier'. The signature is fluid and cursive, with a large initial 'G' and 'P'.

Gérard Pelletier















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